DOCUMENT RESUME

ED 023 181 88 EA 001 678

Symposium on the Application of System Analysis and Management Techniques to Educational Planning in California (Chapman College, Orange, California, June 12-13, 1967).

Operation PEP, Burlingame, Calif.

Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Elementary and Secondary Education.

Report No-DPSC-67-4410

Pub Date Jun 67

Note-319p.

EDRS Price MF-$1.25 HC-$16.05

Descriptors-Consultants, Deaf Education, Educational Needs, *Educational Planning, Educational Research, Educational Television, Family Life Education, *Information Systems, Inservice Programs, International Education, Leadership, *Management Development, Models, Policy Formation, Program Evaluation, *Systems Analysis, Teacher Recruitment, *Training Techniques

Identifiers-California, ESEA Title 3, OPERATION PEP

This is a collection of 21 reports presented at the two-day symposium which ended the eighteen-month planning phase for OPERATION PEP. The symposium served as a culminating activity in a training program for 100 California educators in the application of systems analysis and management planning techniques. The reports, funded under Title III of ESEA, focus on the evolution of management science as a fundamental mode of performance for educational planners in California. (HW)

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SYMPOSIUM

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SYMPOSIUM ON THE APPLICATION OF SYSTEM ANALYSIS AND MANAGEMENT TECHNIQUES TO EDUCATIONAL PLANNING IN CALIFORNIA

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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by

OPERATION PEP
(Preparation of Educational Planners for California)

presented at

Chapman College, Orange, California

June 12 - 13, 1967

The work presented or reported herein was performed pursuant to a grant from the U. S. Office of Education, Department of Health, Education, and Welfare.

PREFACE

The success of the planning phase of OPERATION PEP is reflected in reports prepared by project participants. The following exemplary reports represent a milestone in the evolution of management science as a fundamental mode of performance for educational planners in California. The need for management science is also substantiated by the positions presented by the outside consultants invited to participate in the Symposium on the Application of System Analysis and Management Techniques to Educational Planning In California.

The historical antecedents of the project and the symposium are deeply rooted in the changing cultural environment of education in California which stimulated the creation of OPERATION PEP.

Certainly much of the credit for the successful completion of the planning phase of OPERATION PEP is due to the efforts of individual members of the task force who designed the instructional program. These members include Dr. Donald W. Johnson, Dr. Laurence L. Belanger, Dr. Roger A. Kaufman, Dr. Robert E. Corrigan, and Dr. Wilfred M. Landrus. In addition, the following institutions deserve recognition: The U.S. Office of Education, The California State Department of Education, The California Association of County Superintendents of Schools, Chapman College, The Instructional Materials Division of Litton Industries, The Tulare County Department of Education, and the educational agencies who supported the involvement of the original OPERATION PEP participants. The project represents an example of the productivity which can be achieved through the process of planned interdependency in educational endeavors.

Donald R. Miller
Project Director

EA 001 347

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FOREWARD

"There must be a better way."

One characteristic of American life is its continual quest for improving every aspect of society. "Is it good?" is not the question that motivates us; rather, it is the question, "Can it be better?" So it must be with education. There is little doubt that the schools of today do a better job by teaching more students than ever before. But this does not answer the challenge of "There must be a better way."

This is a report of the two-day symposium at the end of the eighteen-month planning phase for OPERATION PEP. The symposium served as a culminating activity in a training program for 100 California educators in the application of system analysis and management planning techniques. In seeking answers to that question--"Can it be better?"--the participants were aware that their findings would not be unequivocable, but should be considered as a progress report for a given point in time. Those who took part in the symposium, speakers as well as trainees, learned that when "There must be a better way." is the constant challenge, change is the rule, not the exception.

The participants in OPERATION PEP represented school districts, county school offices, supplementary education centers, and the State Department of Education. They came from all corners of the State and included district superintendents, assistant superintendents, principals, curriculum coordinators, consultants, audio-visual directors, and directors of research.

This report is an accounting of the success of OPERATION PEP. Significantly, it shows the ability of those trained to apply the skills thus learned to their present responsibilities. In their own words, the success of their efforts suggests that system analysis and management planning techniques give promise of developing "a better way," or even "several better ways."

John K. Galbraith, in The Atlantic of June, 1967, wrote:

> "If we continue to believe that the goals of the modern industrial system and the public policies that sense these goals are coordinate with all of life, then all of our lives will be in the service of these goals."

The participants of OPERATION PEP have set out on a long, bold quest. They have mastered new tools to reinforce the abilities and values that they hold. They have dedicated themselves to develop the capacity of the public schools of California to act and anticipate the changes in our society, rather than react and compensate. They are aware of our failure to recognize those changes which render certain educational practices obsolete. They will continue to seek a successful role by which those of us in education may maintain adequate control over our destiny as educators.

Looking ahead, the broader issues are not whether planning for the future will take place, but rather:

- Who will do the planning for education?
- How will this planning be done?
- What values will be served by those who plan?

It is to this task--the selection of significant goals for the public schools, and the use of credible means for their achievement--that OPERATION PEP is dedicated.

Sacramento, California
June 29, 1967

Dr. Donald W. Johnson
Director
Programing, Planning and Development
Title III, ESEA
California State Department of Education

THE NEED FOR PROGRAMS OF PLANNED CHANGE

Nolan Estes
U.S. Office of Education

The topic which has been assigned to me is deceptively difficult because it underscores one of the traditional dilemmas of man's existence --dilemma between a vision of the world in which man can control the forces of the reality around him, and the contrary vision of man as the plaything of these external forces. The concept of "Planned Change" is further difficult because it implies not only the Humanist's answer to the dilemma--which is that the universe can be controlled to some degree by its principal inhabitant, man, but difficult also because it implies man's ability to anticipate what the configuration of his external reality would be tomorrow if man were to remain relatively passive awaiting that tomorrow. And further it implies that man can decide whether that tomorrow or some other tomorrow will eventuate.

I am not here this morning to attempt to bridge these philosophical alternatives. I fear that if I were to do so, and if Graham Sullivan were to hear about my performance, he might conclude that the activities on Capitol Hill had been too much for me, and recommend that I remain with you in your more beneficial climate, until my fever had worn off. I would, however, like to outline for you this morning some of the fundamental assumptions of the Office of Education relative to the dilemma of either reacting to educational realitites after they have been inflicted upon us, or anticipating alternative futures and making wise decisions concerning the allocation of resources--human and financial; in other words, assumptions relative to expending our energies in decisions of free choice rather than compensating for the deficits caused by yesterday's inaction.

Let me start by analyzing the appropriate elements of the key piece of legislation currently being administered by the Bureau of Elementary and Secondary Education--and analyze it from the viewpoint of "Planned Change." The Elementary and Secondary Education Act consists of five original sections, or Titles. Certainly Title V, with its sole focus of strengthening State Departments of Education is an attempt to plan for change. Your SEA has made wise use of Title V to this end. Title III has attempted to extract from the imagination and experiences of American educators those innovative ideas that could change and improve obsolete school programs. And Title IV, administered by the Bureau of Research, strives not only to discover the optimum learning situations but also to devise educational environments that would enhance learning. But these Titles constitute less than one-half of the thrust of the Elementary and Secondary Education Act. The key focus of the Act is Title I which consumes a little more than one-half of the total appropriation of two billion for Elementary and Secondary Education activities. Its emphasis, as translated into practice, tend to be compensatory, not planned change. In other words Title I tends to be an antidote for the failure to plan for change in recent decades, decades in which unequal educational opportunities have been allowed to develop along a spectrum that correlates with social and economic factors. Similarly Title II's assistance for library and other educational materials, is essentially a compensatory or corrective thrust. And most unfortunately, we note that in some areas there appears to be a tendency to apply some Title III monies according to compensatory criteria, rather than in pursuit of more inventive methods. Compensatory programs are testimonials to the neglect, indifference, and certainly to the unwillingness to plan for change, in the American Educational system during the last two decades.

This is not to say that compensatory programs should be abolished. To the contrary, to say that something is unfortunate is not to say that it is a mistake. We are figuratively fighting a war in our schools today --a war intended to recapture those who have been taken prisoner by the forces of racial intolerance and economic deprivation. As Mario Fantini of the Ford Foundation has written in The Disadvantaged-Challenge to Educational Reform: Some Policy Considerations:

"Compensatory education is the first step in a series of planned steps aimed at structural overhaul of the entire process by which people are educated. As such it represents an almost necessary first step in a journey toward institutional reform. Those who would reform the institution say that the present educational process is not now geared and was never intended to deal with a diverse learning population. It was designed at a time when the real purposes of the schools were different. For these reasons the present educational process is outdated, and does not, therefore, possess the capability of fulfilling its role in modern life."

There is an important omission in Mario's comments--an omission which I believe is intentional, and certainly an omission with which I wholeheartedly concur. Omitted is the too often repeated accusation that the current necessity for nationwide compensatory emphasis is somehow the fault of the school systems, as differentiated from the fault of the society at large. I find such accusations against school systems as generally unreasonable. How can we argue, on the one hand, that the society in which we live is presenting us with new environmental patterns at an overwhelming rate, and concurrently argue that our teachers and administrators should have been possessed of both the clearness of sight to foresee these changes and the political ability to implement the necessary antidotes--when no other agency of our society was able to either predict or counteract the educational dilemmas now upon us.

I certainly hope that you do not consider this defense of American teachers and administrators as biased professional propaganda. It is certainly not a defense of the status quo. To the contrary, my point is that we cannot change American education by excluding its leaders from the dialogue at the planning boards of the future, or by assigning them to spectator roles in the forum of educational policy making. Federal efforts with Innovative Centers, Operation Follow Thru, the establishment of minimum per pupil expenditures under Title I, development of new media and computer assisted instructional programs--all of these efforts, as well as the efforts of the universities, the private sector, and State departments of education, must be considered as advance probes finding the best paths over which the main army of two million teachers and their pupils can most effectively move into the future.

If then the present compensatory thrust is a stopgap, a testimonial to former inadequancies--what will the post-compensatory emphasis be? Having removed the need for programs for the disadvantaged, do we then move to institutionalize our new systems? If this is the model we seek, then I fear that we have not learned the total lesson implied in our present problems. The lessons of Sputnik and Selma go far beyond the specifics of inferior training in mathematics and the sciences, or the inhumanity of the "separate but equal" doctrine. I submit this morning that there are larger truths in our midst, such as the following: that the processes of change do not operate according to democratic principles but are much more likely to create inequities; that the processes of change are now operating with such speed and pervasiveness that the tragedies that preoccupy us are no longer those of the individual forsaken by an unreasonable fate, but rather the tragedies of entire strata of society, or national groups, and foreseeably, the world itself; a final truth is that whereas formerly it may have been economically possible and ethically proper to react to change "after the fact," we are now at a point where the new patterns of change, when reacted to instead of planned for, are draining our resources and weakening the ethical quality of our existence. In other words, the elimination of the problems of subject matter and civil rights will most likely be followed by new deficiencies and new imbalances--unless we strive to control the major patterns by which change occurs.

Keep in mind that acceptance of planned change does not indicate the overthrow of old values and traditions, but is rather a means by which we can preserve our way of life, particularly the freedom of individual choice that is decreased whenever we have to mobilize the nation, whether for wars on foreign aggressors or wars against poverty. (Some of you may disagree, and see the concept of "Planned Change" as an attempt on the part of an elitist group to control the lives of others. I see such planning as a program that would free us all from the tyranny of antecedent mistakes.)

The Office of Education is presently considering the establishment of "Policy Research Centers" which we will fund in the hope of getting the nation's best minds to identify those problems which have the potential of becoming obstructive, and to provide the local educator with the information needed for preventive decision making. Problem areas already identified include:

1. The changing role of the teacher both as instructor and as member of his professional organization.
2. The emergence of new trades, professions, and other occupations--as well as the changing nature of existing ones.
3. The probable demands on adult education for leisure time training and for occupational retraining.
4. Advances in biophysical knowledge of factors related to intelligence and learning.
5. The shape of the urban complex of the future--its physical, social, economic and political aspects.

6. Changes in the structure of the local tax base.

7. The humanizing potential of education in a technology based society

8. The further development of the mass media and their implications for both in-school and out-of-school education.

Let me share with you just one example of futuristic thinking in education--an example which, incidentally, demonstrates the interrelatedness of many of these areas of concern. Art Pearl of the University of Oregon says the following in writing about future alternatives in developing careers for what he calls "locked out populations":

"This proposal calls for a drastic system change. Basic to its development is the assumption that peripheral tinkerings with the educational systems will not be sufficient to meet educational responsibilities in the years to come. What is offered here is a model for wholesale metamorphoses and realignments. The proposed program calls for changes in relationships between institutions of higher learning, school systems and State departments of education. There is a call for alternatives by breaking with the educational tradition that a student's learning occurs primarily on the campus. Here the college and university will venture out to give credits for learning which occurs on job situations. ----The model must insure that persons not be disqualified because of the deficiency in education or because of previous transgressions. It is of extreme importance that research be directed so that non-discriminatory standards for admission to each level of teaching competency can be determined."

Art Pearl's model, with its implications, (a) for the disadvantaged aspiring for semiprofessional status, (b) for the restructuring of both institutions of higher education and the public school curriculum, not to mention, (c) his involvement of industry with the process of educational progress, is really quite traditional in comparison with others I have heard. At a recent Medical Conference, for example, a proposal was put forward in a most straightforward manner, by a reputable researcher. He suggested that the elimination of racial tensions could be effected by mass distribution of a pill which would eliminate the color differences between us. Undoubtedly, proposals for alternative futures will contain the harebrained as well as the responsible. The designer of perpetual motion machines will have his counterpart in future generations and will be recognized for what he is just as quickly.

The re-structuring of our educational emphasis which I am advocating this morning--from reacting "after-the-fact," to "planned change"--has already begun. In California your progress in the system analysis approach to educational decision making (Project PEP) is an example. It is a well conceived thrust that would develop the "feel" for futuristic planning in public school educators throughout the State. We commend Don Johnson for the excellent leadership he has given to this project , a model for the nation. In addition, the computer-assisted programs developed at Stanford are the most thoroughly developed in the country. In New York and in Texas programs are underway to develop models for school buildings for the Twenty-first Century, fully aware that some of our communities are scarcely out of the Nineteenth Century.

My brief this morning could be summarized as some disenchantment with the programs of the Office of Education as they now exist. To the extent that our programs are fragmented, remedial, and not results of long range planning, this would be an accurate summary. We look forward to the day when the largest common denominator of our programs will be the determination of the most effective and most economic alternatives to achieve the future objectives of a democratic society.

On one of the busses of the D.C. Transit System, there is an advertisement which poses the following question: "What will you do when the computer takes over your job?" Some youngster has written across it, with a defiant pen, "Smash it!" The interface of this message from mass media and the reply from the threatened youngster evoke conflicting emotions. On the one hand, we all stand for the rights of property, and therefore we might be offended by the illegal threat against the helpless computer. Also, we accept the principle of hard work to gain the fruits of new opportunities--a principle obviously rejected by the scrawler. But there are other implications in the situation. Do we have the right, either ethically or economically, to hurl such "either-or" propositions to those left in the wake of technological advances? Do we identify with the computer or with the youngster whose former desire to grow has been turned into frustrated belligerence? Do those of us in the forefront of education have the responsibility to recognize the new inequities, and to help the outsiders become insiders, as well as to reduce the possibility of separation of our students from the means of progress?

Effective planning for change could have made the advertisement unnecessary, and certainly would have eliminated one young man's alienation. The drive represented in his willingness to "take on" the computer may reflect tendencies to act outside of normal patterns. But it also represents energies and instincts of forthrightness, bravery, and perhaps even a sense of humor.

Programs conceived in the context of planned change can harness those energies and instincts for our good--as well as--for the good of our now hostile young traveler.

The Office of Education endorses any program that projects into tomorrow so that each youth can march forward toward a position of responsibility commensurate with his abilities and aspirations.

THE USE OF SYSTEM ANALYSIS AND MANAGEMENT TECHNIQUES IN PROGRAM PLANNING AND EVALUATION

Desmond L. Cook
The Ohio State University

INTRODUCTION

It gives me a great deal of pleasure to have been invited to make a presentation at this symposium for two reasons. First, I welcome very much the opportunity to become personally acquainted with each of you and to acquire greater familiarity with the over-all dimensions of the OPERATION PEP project. Second, I am in agreement with the general idea of OPERATION PEP that system approaches offer a significant means for bringing about improvements in the educational environment.

Dr. Estes has highlighted the need for planned change in education in his keynote address. As I have listened to this concept's being bantered about during the last couple of years, I fear that it is very similar to the comment about the weather attributed to Mark Twain. That is, everybody is talking about planned change, but very few seem to be doing anything about it. My knowledge of the work that is going on under the direction of Drs. Corrigan, Johnson, Kaufman and Miller represents, in my thinking, one of the few systematic and concentrated efforts to develop the needed leadership and to provide the techniques to bring about desired changes on a planned basis in the area of education.

The development of the concepts and procedures underlying OPERATION PEP turns out to be a good case of foresight. This remark is made in view of the fact that within the last couple of months I have become involved with a U. S. Office of Education project concerned with the establishment of discreet but comprehensive planning agencies within a group of seven states. It is hoped that the process of developing and establishing these state planning agencies could then serve as a model for the other states to follow. In thinking about this project, it seems to me that the ideas behind OPERATION PEP are both highly relevant to and timely for this projected activity. The existence of both OPERATION PEP and the seven state project serves only to reinforce my thinking that if any significant changes are to be made in education within the school districts, each state, and throughout the country, systematic planning efforts offer the greatest opportunity to accomplish this goal. Unfortunately, as desirable as our goal is, the educational leadership is handicapped by a lack of comprehensive skills and techniques through which it can achieve the goal. It is my understanding that the purpose of the project in which many of you have been participating during the past months is to remedy this situation by providing the educational leadership within each school district with techniques and skills which they can use to facilitate movement toward the goal.

Drs. Kaufman and Corrigan have presented some of these techniques with their descriptions of system analysis and synthesis. The task assigned to me is to discuss the use of system analysis and management techniques in program planning and evaluation. A more specific context for my comments can be secured by noting that the presentation relates primarily to the step labeled Establishing Management and Control Sub-System in their total list of steps. To avoid some redundancy, I intend to deal primarily with the purpose and functions of management techniques as they relate to program planning and evaluation.

The presence of such a topic in this symposium is important because management problems are an inherent aspect of any programmatic effort. This statement is reinforced by the recent observations of Andrew (1) on the management problems in applied social research. Andrew indicates that the payoff from much social research has been limited because of various problems which can be classified into two major types of stresses--those inherent in managerial arrangements and those growing out of program and research demands and their interaction which he labels the professional context. Time does not permit a detailed presentation of his comments relative to each type. For the moment, it is perhaps sufficient to say that his observations are not unique since there appears to be little done in the preparation of researchers, and even school administrators, with regard to the processes of management although they are often highly prepared in their professional substantive area. Consequently, many action programs fail to reach full fruition. To prevent needless repetition of this situation, it is appropriate that some time be given to the topic of management techniques when talking about programmatic efforts.

The concept of management techniques has several meanings. Let me state that this presentation will not focus upon techniques relating to topics such as how to deal with personnel problems, office organization, or methods of financial accounting. Instead, the focus will be upon the general concept of management systems and, within this concept, the nature and function of management information systems. During the course of the presentation, an attempt will be made to interrelate the concepts of system analysis and program planning and evaluation.

PROGRAM PLANNING AND EVALUATION

To provide a context for the subsequent discussion of management techniques, I should like to review briefly the concept of program planning and evaluation.

It is very much "in" today to talk about programmatic thrusts in various fields. We hear about the space program, defense program, research programs, air pollution programs, and so on. Like many other concepts that are "in" no one seems fully to have reached consensus as to exactly what is being talked about. My remarks will probably not solve this problem, but I would like to give you my idea of what is being talked about when the topic is program planning and evaluation.

Whenever program is mentioned, I think primarily of a carefully organized effort utilizing a "critical mass" of resources moving toward the achievement of an objective which the culture has agreed upon as being worthy of being attained. The elimination of polluted air, poverty, dreaded diseases like leukemia, are worthy program objectives. It can almost be axiomatic that when there is no objective there is no meaningful program. Having established an objective, a plan is established to accomplish the objective. In short, a blueprint or a roadmap for the future is developed. In doing so, an attempt is made to build the plan to conform to the parameters of time and cost that it will take to achieve the performance level stated in the objective. Having established the plan, the program moves into an operational phase which is essentially the carrying out of the activities that are expected to lead to the objective. As work moves along and tasks are accomplished, there is a need to evaluate progress to see how well the actual work is going in terms of how it was planned to go. Such questions as: Is the program ahead or behind schedule? Is the rate of expenditures too fast? Where are problems developing? are illustrative questions which are raised in evaluating program status. I would call your attention at this time to the fact that evaluation is being defined here in terms of what management refers to as process control as opposed to any concerns about evaluating the end product or objective. For the remainder of my presentation, the word evaluation will be restricted to concerns about a comparison of actual to planned progress as opposed to concerns about the quality of the end product. It is through the comparison of what should be happening to what is actually happening that problem areas are identified for subsequent management actions during the course of the program. With this brief background on program planning and evaluation, let us turn our attention to the topic of management techniques.

MANAGEMENT TECHNIQUES

The success of any programmatic effort will depend greatly not only upon the initial planning effort that goes into it, but just as importantly, upon the employment of a viable management plan by the person charged with the responsibility for carrying out the program effort. The success of such a large scale program as the lunar landing is due not only to the professional technical and scientific competence which has been assembled for the program, but also to the managerial competencies and skills brought to the program. This latter point is often overlooked by most of the general public until there is a disaster such as the recent Apollo fire when the program management was subjected to heavy and, in my opinion, much undeserved criticism.

To talk about management techniques without some general reference to the nature and function of management would be an incomplete activity since such techniques or tools are basically designed to assist management in carrying out its responsibilities. There are many definitions of management but basically most definitions focus upon the responsibilities of organizing, directing, and controlling personnel and resources to carry out the accomplishment of an objective.

It is also generally recognized that a manager's principal functions are those of problem identification, decision-making, and the prevention of future problems. Our present state of knowledge about these three functions is that they cannot be accomplished without some systematic procedures. It is perhaps, therefore, more appropriate to talk about management systems rather than management techniques.

It might be helpful to us if we were to define what is meant by a management system. In their recent book on network based management systems, Archibald and Villoria (2) provide us with a useful working definition.

> We may define a management system as a set of operating procedures which personnel carry out to acquire needed information from appropriate sources, process the data in accordance with a pre-programmed rationale, and present them to decision makers in a timely, meaningful form. Most contemporary systems involve manual data collection and input, machine processing, tabular and graphic output production, and human analysis and interpretation. Thus we can say that the systems collect, synthesize, process, transmit, and display information, which flows from a primary source, through an editing, computation, and selection process to the manager.

Two principal ideas are highlighted in this definition. First, the systems are designed to provide information. Second, the final decision-making operation is left to the manager. Some sophisticated systems do have what is called pre-programmed decision-making as an inherent part of them. Most systems, however, still rely upon the use of humans to make non-programmed decisions. Further, most of the systems developed are primarily aimed at facilitating the process control responsibility given to a manager. The focus of control is nevertheless related to the planning effort that has gone on before. It can be almost stated as an axiom that if one establishes a plan, he intends to exercise control to make sure that the plan is accomplished.

In view of the definition presented above, it seems more appropriate to label such systems as management information systems. To visualize how such systems operate within the management situation, picture a triangle divided into approximately three equal horizontal sections. The bottom section of this triangle consists of elements of information--or what is commonly referred to as the data base. What and how much information should be in this base is open to question, but generally within a program planning effort the information assembled relates to time, cost, and performance. Such information is included because most program efforts operate within a set of time/cost/performance parameters. That is, there is usually some goal to be achieved which has specified criteria of accomplishment and this goal must be reached within a schedule period of time and certain budget limitations. Most military weapons systems operate under such conditions as do many non-military programs such as the lunar landing or space programs. Many programs funded under the Elementary and Secondary Education Act also operate under a set of similar parameters. Reports to management stem from this data base on schedule reporting periods (i.e., daily, weekly, monthly, etc.). In terms of management levels, this base section is often equated with immediate performing departments or units concerned with the specific day-to-day tasks, or operational control as it is called (5).

The middle section of the triangle represents operating management whose primary concern is to assure that resources are obtained and used effectively and efficiently in accomplishing the objectives. To do this, information requests and demand reports are secured from the data base. Such reports are secured often in addition to the scheduled reports sent upward from the data base. The main function of this level is that of control.

The top section of the triangle represents general or executive management which is primarily concerned with policy level decision-making. Focus here is often on information for the planning effort as contrasted to information for the middle section which is focused upon control. There are times however when top-level management desires and uses the information for control purposes.

Within this structure, different kinds of information (i.e., data) are needed by the three levels for different purposes. It is important to know the information requirements at each management level along with the description of the data and how they interrelate in order to establish a useful data base.

It has been generally agreed upon that managers operating within the program or project planning and evaluation situation require data or information relating to time or schedule, costs, or resources, and performance, reliability, or quality of objective accomplishment. Of these three types of data, the most common data obtained and used in a program situation are those of time or schedule.

While seemingly easy to think about, the development and use of management systems is not so easy because a system designed for one purpose may not be suitable for a different purpose. For this reason, numerous management systems have been developed over the past several decades to facilitate the manager's task. Three general types of systems have been developed, each designed to serve a different purpose. One group of systems relates to the quality characteristics of a product. A second category of systems relates to the operations involved in producing the product. A third group of systems relates to the administration involved in carrying out the operations.

It would not be possible to discuss all three types of systems within the time allotted so I have chosen to talk primarily about selected operations-related systems which have become increasingly popular during the past decade because of their relatively high degree of success in carrying out research and development activities within the military-industrial complex of our society. The application of such techniques to the field of educational research and development is just beginning, but their value has already been demonstrated and they should grow in increased usage during the next decade.

Network-based Management Systems

Any formal or structured management technique that is to be meaningful and useful for programs of planned change must help us to accomplish three tasks (3). The first task is to develop a general program model based upon a logic derived from the substance of the work to be performed. Major program elements are then identified which in turn are further reduced into smaller work packages. The second task is to sequence the order of effort by determining the logical relationships between the events. It should be recognized that within the research and development situation, any such ordering will be tentative and will be subjected to continuous modification. The third task is to provide a time frame so as to establish a basis for determining present and projected resource requirements and to provide a schedule for the completion of events and activities. Further, any such technique must be easily understood, help to establish priorities, deal with the uncertainty problem, be predictive and help to forecast problem areas in advance, and enable us to manage by exception.

The specific group of process-related management systems that will help us to accomplish the above tasks is that referred to as network-based management systems. The two most popularly known examples of these systems are those of the Program Evaluation and Review Technique (or PERT) and the Critical Path Method (or CPM). While each of these systems has distinctive characteristics, they do have sufficient similarity that both can be discussed under the more general concept of network techniques. Time does not permit a detailed presentation of system characteristics so only an overview can be presented here.

The implementation of network techniques as a management information system for a research program or project can be subdivided into two principal operations. The first is planning and the second is control.

The first step in planning is to breakdown or breakout the work that has to be accomplished in order to achieve the prime and supporting objectives. This process is referred to as establishing the work breakdown structure. The process is a top-down activity with prime objectives at the top being broken down into successive smaller and smaller units until some point is reached at which there seems to be no additional value in breaking out the particular tasks to be done. The final unit of breakdown is referred to as a work package. It is at this point that the work breakdown structure process and the mission profile derived from a system analysis procedure become highly interrelated. Once the analysis program has been carried through the mission, function, and task analyses stages, the work breakdown structure required for network planning should have been pretty well established. A major integration of system analysis and management techniques for program planning and evaluation takes place at this point.

Having once identified the various work packages that have to be done to accomplish the mission, a network is established. The network is a graphical representation of the plan showing the logical sequence and interdependency of work to be accomplished from the time the program is initiated until its final termination. Individual tasks to be accomplished which utilize resources and consume time are called activities. Activities are usually represented on the network by a straight line with an arrowhead to show flow. The start and/or completion of an activity is referred to as an event. Events are points on time and do not consume time or resources. They are represented on the network by a circle or other geometric figure. The work flow in the network is always from left to right. The amount of detail to be included in a network is a function of its purpose. Operating networks will have more detail than networks prepared for top management use.

The network serves many functions but among the principal ones are a graphical representation of the program plan, a communication tool for the performing and managerial staff involved, and a basis for control by management.

Once the network is finalized, the next step is to establish a time frame for the total project or program duration. Depending on which specific network system (PERT or CPM) is to be employed, single or multiple time estimates (usually three) are secured for each of the individual tasks assuming resources as planned or available and under a normal resource application rate (e.g., 40 hr. week) from those persons who are to do the task. Single estimates are referred as deterministic estimates while multiple estimates are known as probabilistic estimates. The latter estimating procedure has the advantage of helping us to deal with the uncertainty problem which characterizes much research and development work. When three time estimates are secured, an average estimate is obtained along with a measure of the variability of the estimates by the application of appropriate formulas.

After the single or average time estimates are secured for each task, they are utilized to find the total time for the project as well as the time needed for the start/completion of each event in the network. There is one set of tasks in the network that is the most time consuming. This set of tasks is referred to as the critical path. In addition to the critical path, we are able to determine the amount and location of slack existing within the network. Slack refers to the difference between the earliest time an event can take place and the latest allowable time it can take place without jeopardizing project completion. While diamonds may be a girl's best friend, slack is one of the best friends a manager can have.

Once the time frame is established, schedule dates are set up for the start and completion of work after consideration is given to resource requirements needed for the various activities in the total program or project and their availability. Once the schedule has been established, work on the project now begins.

Successful completion of the above tasks done in the planning stage provides the information needed for the data base of the triangle referred to earlier. As I prefer to say, the "shoulds" for the project or program have been established.

The second stage of implementation, that of control, begins once work on the project is initiated. Periodic reports are prepared which reflect actual status of the project schedules with regard to work completed, work in progress, and work yet to be done. These reports are summarized and presented to management in both graphic and narrative form with a primary emphasis upon the exception-reporting principle. That is, the reports presented to management are so organized that only the most serious problems (i.e., deviation of performance from plan or actuals from shoulds) are presented for management consideration and decision. Solutions to these problems usually take the form of adding resources, redefining tasks, eliminating tasks, or paralleling tasks which originally were in linear order. Considerations of time/cost/performance trade-offs are made at this time. Once management action is taken, necessary revision or changes in the project or program network are made, new time estimates secured, and new schedules established. Work then continues until the next reporting period and so on until the program or project objective is reached.

The above is admittedly a brief description of network systems but additional information can be obtained from a reference such as that by Archibald and Villoria (2) or from a monograph (4) describing the applicability of network systems to the field of education and distributed by the U. S. Office of Education. I hope that sufficient description has been provided so that you can see that network techniques meet the requirements of the three tasks as set forth earlier and meet criteria for a management information system. It should be pointed out here that network systems have been expanded to include the planning and control of costs with some exploratory work being done to include the planning and control of performance but time again does not allow us to present details on these procedures.

It can be stated that network techniques with their analytical and diagrammtic approaches to the problem of planning and control assist management with the following kinds of tasks:

1. defining the work to be carried out
2. producing better schedules based on available and needed resources
3. making decisions about the best way to apply resources to achieve program objectives
4. monitoring progress and identifying those points where delays could jeopardize the project in time to permit corrective action to be taken (6).

It is only fair to point out that not everyone is in agreement with the idea that management systems in general and network techniques in particular have any value for planning educational changes. Such objections center on the idea that one cannot identify the objectives as precisely as the system requires, that many of the tasks to be accomplished are not determinable, let alone definable, so that useful time estimates can be secured, and that one cannot plan or schedule intellectual and creative work. Such objections may have validity for many research and development programs, even including those in the field of education. The successful employment of such techniques in education has, however, demonstrated that network systems do have validity and relevance for many education problems. Coupled with system analyses techniques, network systems are highly potent tools for bringing about desired improvements in education.

An Illustration

The concepts of program planning and evaluation, managerial techniques, and their relations to system analysis procedures have been reviewed briefly. You might well ask how do these all operate conjointly to bring about changes in the field of education.

Let me try to answer this question by using an over-simplified illustration. Let us suppose that you are concerned with the improvement or change (to use present day pedagese) of student achievement. Through system analysis, you have established criteria of performance which are qualified for later evaluation. Having taken this step, you now consider the means-ends alternatives available to you.

One could employ televised instruction, computer-assisted instruction, team-teaching, and so on. Let us assume that the results of your deliberation indicate that team-teaching is the highest ranking alternative (notice that I do not say best). So your mission objective is to implement team-teaching in your school district. Through function and task analysis, the many functions and tasks that have to be carried out during the period of implementation have been identified and the mission profile prepared.

At this stage of the game, you are now ready for a management system to help you with the job of actual planning and controlling the implementation. Using network systems, the work breakdown structure is established, the network drawn, time estimates secured, schedules set up, and resources allocated, critical milestones identified, and reporting systems prepared. Once under way, the manager will have to evaluate and review how the implementation process is going. Is he ahead or behind schedule? Because of unforeseen problems such as a strike by the local teachers or the nonavailability of a consultant, are changes in the plan required? Periodic reports prepared for management will not only apprise him of present problems but will also identify potential future problems. Carefully prepared progress reports and their proper utilization by our school district superintendents will go a long way in making sure that the implementation of the team-teaching program will have actually taken place by the date he has established and within the projected costs.

While over-simplified, the above illustration does incorporate the three concepts that I have been asked to deal with this afternoon. System analysis is used to help decide what the objective is, the most feasible alternative to achieve it, and the many tasks which must be done along with their logical sequence. Management techniques will help us to plan the program in terms of how we intend to proceed and then help us to control or stay on top of the operation. Using this technique, we can bring together both professional substantive competence and managerial skills so that our programs of planned change can become living evidence of our efforts.

Conclusion

To conclude this presentation, it seems imperative to me that if we are going to bring about improvements or changes in the field of education they must, of necessity, be both planned and controlled. The employment of system analysis and synthesis procedures offers a challenge and an opportunity to improve our planning effort. Such techniques force us to face up to the question of what exactly it is that we want to accomplish and how we intend to go about it. The specification of the objective and its subsequent analysis to identify the functions and tasks which have to be accomplished in order to reach the objective require us to use our logical skills to a very high degree.

Once the analysis is made, we are only partly along the road. The operations necessary to bring about the change or accomplish the objective have to be initiated and carried out. This situation requires selection and employment of some management system or technique to make sure that the plan is accomplished within the time/cost/ performance constraints that are present or established. Employment of new and highly successful management techniques commonly called network-based systems, specifically PERT and Critical Path Method, provide a means of meeting this end.

The focus of this symposium is on planning for educational change and on the preparation of educational planners. As noted above, planning implies control. Because of this relationship, educational planners should be knowledgeable about and competent in the tools and techniques of management if there is to be assurance that the program goals that have been established are to be accomplished. I hope that my remarks today have stimulated each of you to become interested in securing proficiency with such management techniques.

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(May, 1967)

THE ROLE OF EDUCATIONAL LEADERSHIP IN IMPLEMENTING EDUCATIONAL CHANGE

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> The dogmas of the quiet past are
> inadequate to the stormy present . . . .
> Let us disenthrall ourselves.

What Abraham Lincoln said of his times is even more compelling today as the tempo of change rushes forth at an accelerating rate. The late Robert Oppenheimer expressed the break with former eras in these terms:

> This world of ours is a new world in which the unity of knowledge, the nature of human communities, the order of society, the order of ideas, the very notions of society and culture have changed, and will not return to what they have been in the past. What is new is new not because it has never been there before, but because it has changed in quality. One thing that is new is the prevalence of newness, the changing scale and scope of change itself, so the world alters as we walk in it, so that the years of man's life measure not some small growth or rearrangement or moderation of what he learned in childhood, but a great upheaval.[1]

And the Angel Gabriel in Green Pastures put is more succinctly: "Everything nailed down is coming loose."

"The Man in the Middle"

This paper is about "the man in the middle"[2] --the school administrator--who really performs "a balancing role" which George Spindler describes in the following manner:

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[1] Max Ways. "The Era of Radical Change," Fortune, 58:5; May, 1964.

[2] Art Gallaher, Jr. "Directed Change in Formal Organizations: The School System." In Change Processes in the Public Schools (edited by Richard O. Carlson, et al). Eugene, Oregon: Center for the Advanced Study of Educational Administration, University of Oregon, 1965. p. 49.

> His job is in large part that of maintaining a working equilibrium of at best antagonistically cooperative forces. This is one of the reasons why school administrators are rarely outspoken protagonists of a consistent and vigorously profiled point of view. Given the nature of our culture and social systems, and the close connection between the public and the schools, he cannot alienate significant segments of that public and stay in business.[3]

The school administrator, then, must always maintain stability, continuity, and confidence--and he is more concerned with control processes than change processes, according to Bassent and Moore.[4] This paper will focus upon only one end of the continuum--the change dimension. A further focus will be upon implementing change, not upon the processes of researching, demonstrating, disseminating, and evaluating, although all of these processes may be involved in implementation. As a further delineation, the paper will concern only administrators in elementary and secondary education.

What is the Role?

We may start by asking this question: "Does educational leadership have a role in implementing educational change?" After giving a "yes," I would like to say, "but it depends..."

- It depends upon the type of innovation. Taking a clue from a widely distributed report by rural sociologists that classified changes in agriculture on the basis of changes in materials or equipment (e.g., a new variety of seed), in existing operations (change in rotation of crops), in new techniques or operations (contour cropping), or in the total enterprise (from crop to livestock farming),[5] educational innovations can be classified into four types. Organizational and instructional innovations, such as nongradedness and team teaching, require extensive planning and many fundamental changes; organizational changes such as flexible scheduling require considerable planning and substantial changes but not as much as the first category; instructional innovations, such as ETV and new math, require intensive planning by fewer people and tend to be less extensive; and methodological innovations, such as in the I.T.A. reading program or inquiry training, can be undertaken in a single classroom.

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[3] George Spindler (ed.). Education and Culture: Anthropological Approaches. New York: Holt, Rinehart and Winston, 1963. p. 238.

[4] Wailand Bessent and Hollis A. Moore, "The Effects of Outside Funds on School Districts," in Perspectives on Educational Change. New York: Appleton-Century-Crofts, 1967. p. 116.

Little attention has been given to the differences among innovations as a factor in educational leadership. Obviously, administrative action should differ for a nongraded school as compared with new math. The role of the administrative leadership should be directly proportional to the complexity and extensiveness of the change. Some methodological innovations can be initiated and implemented without administrative support or knowledge but this situation can or should never apply to nongradedness or flexible scheduling. In developing a strategy for implementing change, consideration needs to be given to these relationships.

- It depends, secondly, upon the size of the district. The role of the superintendent in implementing innovations will vary considerably in a district with 100,000 pupils as compared with one of 10,000. Too often this simple fact is overlooked and the administrator acts as a designer and an implementer when he should be a facilitater and prompter.

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[5] How Farm People Accept New Ideas, Regional Publication No. 1, Ames, Iowa: North Central Rural Sociology Committee, Subcommittee for the Study of Diffusion of Farm Practices, Cooperative Extension, 1962. p. 9.

The study of staff leadership by Neal Gross and Robert E. Herriott found that a statistically significant relationship exists between the size of the student body and executive professional leadership (EPL): "The smaller the school enrollment, the greater the principal's EPL. School superintendents may find it worthwhile to explore what steps can be taken to limit the size of elementary schools and to increase the EPL of principals in large ones."[6]

o *It depends* upon how you interpret the role of the administrator. The literature is in agreement on the importance of the superintendent and principal in implementing change. In essence, it says that the superintendent's attitude toward an innovation has significant influence upon its implementation.[7]

But the literature is not clear on the role of the administrator in a system approach to implementing change. The role of the classroom teacher, for example, has been given little attention. Writing on roadblocks to use of ETV, Harold Wigren observes: "Too often administrators have developed plans for ETV and presented them on a platter to teachers with the comment, 'Look what we have for you.' The teacher in unimpressed because he has had little acquaintanceship with the medium or little or no part in planning for its introduction."[8] And as Margaret Gill points out: "...it doesn't make any difference how many institutes teachers go to; it doesn't make any difference how many beautiful speeches the superintendent makes on the opening day of school; it's what a teacher actually does with whatever time he has, regardless of what materials he's using when he is working with a group of children or youngsters, that will effect changes."[9]

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[6] Neal Gross and Robert E. Herriott, *Staff Leadership in Public Schools: A Sociological Inquiry*. New York: John Wiley and Sons, Inc., 1965. p. 153.

[7] Henry M. Brickell, *Organizing New York State for Educational Change*, Albany, N. Y.: State Education Department, 1961, p. 23; Malcolm Richland, *Traveling Seminar and Conference for the Implementation of Educational Innovations*, Santa Monica, Calif.: System Development Corporation, 1965, p. 84. Daniel E. Griffith, "Administrative Theory and Change in Organizations" in *Innovation in Education* (Matthew B. Miles, ed.), New York: Teachers College, 1964, pp. 425-36; Donald W. Johnson, *The Dynamics of Educational Change*, Sacramento, Calif.: Bulletin of the California State Department of Education, 1963, p. 122; Gordon N. Mackenzie, "Curricular Change: Participants, Power, and Processes," in *Innovation in Education*, *op. cit.*, pp. 410-11; and Richard O. Carlson, *Adoption of Educational Innovations*, Eugene, Oregon: The Center for the Advanced Study of Educational Administration, 1965, pp. 10-11.

A few additional words will be said later about the system approach, although this important aspect will be left very largely to other presentations.

PACE and Educational Leadership

ESEA Title III (PACE) has captured the imagination of American educators and teachers. It has been called "the most exciting of the Act's five titles" in the January, 1966, issue of Phi Delta Kappan magazine; and "the most original feature of the education bill" in the April 21, 1966, issue of The Reporter magazine. How does PACE relate to educational leadership? I would like to suggest five ways:

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[8] Harold E. Wigren, "The Process of Change in Television," in Perspectives on Educational Change. New York: Appleton-Century-Crofts, 1967. p. 177.

[9] Margaret Gill, "New Curriculum Programs," in Proceedings of the Conference on the Implementation of Educational Innovations (Don D. Bushnell, ed.), Santa Monica, Calif.: System Development Corporation, 1964, p. 227.

1. Title III is an innovation in itself and needs tender loving care as well as hard nosed evaluation. Educational leadership must not take the starch out of Title III projects by making them carbon copies of what is already in operation. The long term value of PACE to American education is in terms of its cutting-edge dimension, serving as a catalyst for change. Whether PACE attacks age-old problems such as reading or new problems of computer utilization, accent always should be on creative and innovative approaches. This simple message is at the heart of ESEA Title III, which might be viewed not so much as a takeoff phase in itself but as laying the groundwork for the takeoff. PACE may be considered as "A"; "B" as the takeoff phase; and "C" as improved education.*

2. PACE needs to be viewed as a challenge rather than a threat. Through the use of Title III funds several states are developing intermediate units of educational leadership.[10] They might be called mini-reorganizations! Whenever this happens, problems may be expected. Vested interests are threatened, established procedures are questioned, personal convictions are challenged, and blood pressures usually rise. Of course these reactions are as old as man himself, and they will be repeated countless times in the future. What is important, however, is the context of the reorganization problem.

- What is the rationale for the change?
- Do the changes mesh with prominent forces and trends in American society and in education, both regional and national?

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*Arthur A. Hitchcock is credited with this idea.

[10] For further information, see William J. Emerson, "The Intermediate School District Middle Echelon of a Three-Echelon State System of Schools." Journal on State School Systems Development, 1:33-45; Spring 1967.

- Why do we believe that structural changes will result in better learning in the classroom? Are procedures and strategies for implementation sensitive as well as sensible?

The debate on new regional structures needs to focus upon questions of this nature. (It is a matter of feeling strongly and thinking clearly--and recognizing the difference!)

3. At the district level, educational leadership needs to serve ESEA Title III primarily as a supporting and a facilitating force--one that releases energies and clears roadblocks. As one local PACE director put it, "Washington is a honey, but locally we are climbing walls."[11] The responses of 723 Title III project directors indicated that a greater number (5.5%) expressed dissatisfaction with administration of Title III at the local level than at the federal level (2.3%); and a greater number (7%) expressed satisfaction with administration at the federal level as compared with 3% for the local level.[12]

Leadership in implementing change through ESEA Title III may be expected to come through the project directors themselves. The twenty special consultants for the national study of PACE were uniformly impressed with the high quality of PACE project directors. ESEA Title III has captured a conspicuous percentage of the dynamic, intelligent, creative, ambitious, and restless individuals who all too often leave education because of low salaries and poor working conditions, to be sure, but probably more often because of frustration and lack of challenge.

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[11] Hilda Taba, "Curriculum Development." In Notes and Working Papers Concerning the Administration of Programs (Catalyst for Change) Washington, D.C.: Committee on Labor and Public Welfare, U. S. Senate, 1967. p. 125.

[12] Richard I. Miller, "Overview Report." In Notes and Working Papers Concerning the Administration of Programs (Catalyst for Change) Washington, D.C.: Committee on Labor and Public Welfare, U. S. Senate, 1967. p. 125.

Considering the nature of Title III and those directing it, the supporting and facilitating roles are critical ones for administrative leadership. These include opening doors, removing barriers, and bridging the gap between the ongoing school program and promising developments in Title III.

4. Bridging the gap is a developing role for educational leadership. So you have developed an outstanding program under Title III. Fine! Now how can the rest of the system benefit?

Will a few attractive bulletins do it? They can be helpful--as openers--but a great deal of delicate liaison, persistent plodding, and intelligent planning remain in bridging the gap. A specialist in the change process, if such an expertise can be found, should have the immediate task of implementation, but he will need considerable assistance and some guidance from the power structure. As ESEA Title III continues and as more projects come to the developmental stage, problems for moving the findings into operating procedure will become more evident. But now is the time when we need to give greater consideration to this dimension of the Title III story.

There is another side, however, and it has to do with PACE projects that are too experimental or too innovative to be successfully blended into the ongoing program. We need more projects of this nature, and also more risk-taking ones. Sometimes we learn more from failures than successes, but this point seems academic because in education we have so few (admitted) failures.

5. And finally, findings are beginning to emerge from PACE studies that augur well for greater effectiveness in implementing educational

change. The fact that we are attending an excellent conference on educational planning is evidence in itself of an increasing sophistication in the processes of educational change.[13] ESEA Title III has served as a catalyst for this development, and perhaps its greatest contribution will be in this area.

The "Should" Dimension

Thus far this paper has dealt with what could be called "is" dimensions, and a section on ESEA has tied educational leadership more specifically to a federal program designed to bring about change. Now I would like to explore some more general landmarks that might help educational leadership as it attempts to guide educational innovation through the turbulent waters of community pressures, dashing rapids of conflict and vested interests, and fog of clear and precise advice from consultants. The following seven points silhouette a strategy for assisting educational leadership in implementing educational change. These points say, in essence, that man is master of his own destiny and not a victim of circumstances and forces over which he has little or no control. I take this position in cognizance of the free will versus determinism argument that has intrigued philosophers and political analysts for centuries, and in view of the earlier statement by Professor Spindler.

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[13] The field of education can claim a number of diffusion studies--172 according to Rogers, and many others since his count--but this tradition has not made significant contributions to general literature on innovation and its processes. Donald Ross points out that educational diffusion studies illustrate strong intercommunication within the tradition but very little close attention to any other diffusion tradition. Neither the field of educational sociology nor educational psychology has paid much attention to studies of educational change, if judged by a content perusal of leading textbooks in these fields. (Everett M. Rogers, Diffusion of Innovations, New York: Free Press, 1962, p. 29; Donald A. Ross, editor, Administration for Adaptability, rev. ed., New York: Metropolitan School Study Council. Teachers College, Columbia University, 1958. p. 553.)

1. Conflict. Should we not face up more squarely to the "impossible" job of educational administration and accept the "damn-if-you-do-and-damn-if-you-don't" reality in many decisions? In a multidisciplinary conference on change, Robert Chin issued this provocative challenge: "The happy ship is no longer tenable."[14]

As applied to implementing educational change, this guideline has two ramifications. First, opposition should be expected, and it should be considered normal and desirable. Such opposition forces us to reconsider the situation and think more vigorously about it. Superintendent Guy Potts has written about "the rocky road to educational innovation."[15]

Secondly, time should be spent working with those favoring the innovation. Some administrators feel that everyone should be positively inclined and therefore a great deal of time is spent trying to win over wobblers and opposition. A few innovations such as nongradedness do require a commitment on the part of every teacher in the unit, but this situation is not true for most others. Successful implementation is difficult enough when one has things going for him. It is better to work initially with the converted and leave the others until later, if at all.

2. Skepticism. Educational leadership should be skeptical about educational innovations and circumspect about their implementation.

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[14] Robert Chin, "Change and Human Relations," in A Multidisciplinary Focus on Educational Change. Lexington, Ky.: Bureau of School Service, 1965, preface.

[15] Guy S. Potts, "The Rocky Road to Educational Innovation," in The Nongraded School: Analysis and Study, New York: Harper and Row, Publishers, Inc., 1967, pp. 103-106.

Skepticism in this context is defined as an attitude of open-mindedness combined with wait-and-see.

Since Sputnik the educational scene has been inundated with a great variety of educational innovations, each with some claim to improving what goes on in the schools. In most cases little research was done to determine whether the innovation would really improve learning or do what it was purported to do. In some instances, educational innovations are based upon someone's hope or perhaps introduced with the hallowed blessings of some father-figure in American education.

Educational leadership should protect itself against failure by holding some projects at arm's length, watching how they develop. To immediately embrace many innovations without a reasonable incubation period is unwise, unless, of course, the leadership is intimately related to the innovation itself. The "arm's-length-before-embracing" approach should not be equated with negativism or conservative behavior. It is just common sense. Life controlled by common sense is quite common, but discreet doses of it are essential to sound decision making about most things.

3. Risk-taking. This point would seem to contradict the previous one, and it does, yet is not contradiction itself a normal state of affairs in leadership?

- the acceptance of ferment as normal and desirable, working with the converted;
- the presence of skepticism and avoidance of band wagon innovation;
- the necessity of taking risks.

Normally one should not take risks that have little chance of success. A football quarterback who thrives on excessive risk-taking will probably find himself benched, and the basketballer who takes awkward and unlikely shots will meet a similar fate. Extreme risk-taking does have its place in sports, in military warfare, in school leadership and elsewhere, but these situations do not constitute the rule. Baseball championships are won by percentage batting and not by home runs.

4. Timing. William Shakespeare said it very well in Julius Caesar:

> There is a tide in the affairs of men,
> Which, taken at the flood, leads on to fortune.

The element of timing is recognized as critical in many endeavors such as music, military warfare, and football, but little attention has been given to its role in implementing educational change. We know very little about how one is educated or trained for a sense of timing. Experience probably plays a key role, as do patience and confidence.

How many times have you seen examples of faulty timing? How many times have you seen square pegs forced into round holes when a little better timing might have knocked off the corners? And how many times have you seen frenzied action without direction or particular synchronization with ongoing programs?

Probably the best answer to timing is planning--planning that attempts to look at the gestalt of the task to be done and then sets up tasks, sequence for accomplishment, and evaluation.

5. A System Analysis Approach. Implementing educational change should have the benefit of a system approach, or, in more simple terms, a planned approach which considers all major variables and how they relate one to another in achieving carefully constructed objectives. This approach is common operating procedure for anthropologists in making cultural analyses. Many collegiate football coaches use the system approach to prepare for weekend clashes.

The call for a system approach is being heard with increasing frequency and is now commonplace in the literature, yet the concept has not as yet penetrated educational practice to any extent. In another address I have mentioned eight components of a system analysis that should be considered by a school system that is planning to introduce educational technology. The eight components are:

- capability of the hardware,
- capability of the software (program),
- nature of the community,
- individual difference considerations,
- teacher factors,
- curricular coordination,
- nature of the subject matter, and
- evaluation procedures.[16]

The extent and timing of the respective considerations is an art as much as anything, and success of the analysis depends largely upon this orchestration.

6. Strategy for Effective Change. This section should be part of a system approach rather than a separate section, and the division is made for purposes of presentation. The system approach should consider strategy as well as component parts and their relationships.

Some educators have looked for a single theory of change that could be used per se or flexed a bit to fit any circumstance. This search has been in vain, and undoubtedly will continue to be so. With respect to social change, Wilbert E. Moore has written: "Since there is no singular theory of social structure in more than a definitional sense, there is no reason to expect a singular theory of change, since different types of social organization set different variables for analyzing changes in patterns of action."[17]

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[16] Richard I. Miller, Educational Technology and Professional Practice. An address at The John Dewey Society Annual William Heard Kilpatrick Memorial Meeting, Dallas, Texas, March 11, 1967.

There are many models for the change process that might be of interest, and several of the more common ones are footnoted.[18] I would like to outline one here that has not received the attention which, in my opinion, it deserves. Stephen A. Corey has used these steps in the change process:

- dissatisfaction with self: The person who says to himself "I need to change if I am to get done what I want to get done" is expressing the kind of self-dissatisfaction that seems to me to be essential for any significant change.
- hope: It often springs into being when a teacher who is dissatisfied gets a picture in his mind of something he might do that promises a priori to reduce his dissatisfactions.
- differentiation: He is not apt to take specific action to improve until this dissatisfaction becomes more specific--takes on more focus.
- defining the difficulty: One of the best ways to define an activity...is to develop methods for measuring the degree and quality of the activity.
- the search for causes: It takes the form of trying to identify the causes of the specific troublesome situation...Each presumed cause, in a sense, becomes an hypothesis to be tested.

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[17] Wilbert E. Moore, Social Change. Englewood Cliffs, N. J.: Prentice Hall, Inc., 1963. p. 24.

[18] See center for the Study of Instruction, Innovation in Education, Washington, D. C.: NEA Center for the Study of Instruction, 1966; Matthew B. Miles, editor, New York: Bureau of Publications, Teachers College, Columbia University, 1964; and Perspectives on Educational Change, Richard I. Miller, editor, New York: Appleton-Century-Crofts, 1967.

> - the search for more effective behavior: The sources of these ideas for action to ameliorate or eliminate the conditions that keep one's behavior from having the desired effects are various.
>
> - the trial: This action actually is a final test of the teacher's judgment as to what should be done to reduce his dissatisfaction. The care with which this presumably better behavior is put into effect will determine whether or not its consequences can be determined.
>
> - evaluation: Concurrent with action as well as subsequent to it, its consequences are observed....The various aspects of intentional change are intimately related, and each interacts with the others.[19]

You will note that Dr. Corey begins with the self. This seems, to me, to put the matter in perspective, although some change is not the result of "dissatisfaction with self" but from memorandum or from a restless spirit that has tasted success and wants more. But, generally speaking, dissatisfaction with self is a valid starting point. On this point, you might want to try on for size the Inventory of Change Proneness that is given as an Appendix to this paper. It is based on the assumption that a personal commitment to mental flexibility, open-mindedness, and curiosity is an essential precondition for effective change. H. C. Barnett sees innovation as a mental process and also as an individual one--"All cultural changes are initiated by individuals."[20]

7. Optimism. Superintendent Mott, in Sinclair Lewis's Main Street, was asked by Carol Kennicott:

> Tell me, Mr. Mott: Have you ever tried any experiments with any of the new educational systems? The modern Kindergarten methods or the Gary System?

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[19] Stephen A. Corey, Helping Other People Change. Columbus, Ohio: Ohio State University Press, 1963. pp. 27-36.

[20] H. C. Barnett, Innovation: The Basis of Cultural Change, New York: McGraw-Hill, 1953. pp. 15-16, 56-57.

> Oh. Those. Most of these would-be reformers are simply notoriety-seekers. I believe in manual training, but Latin and mathematics always will be the backbone of sound Americanism, no matter what these faddists advocate--heaven knows what they do want--knitting, I suppose, and classes in wiggling the ears.[21]

Superintendent Mott is not my example of optimism. An optimist looks at the glass as half full rather than half empty, and personifies the "can-do" spirit. Little success in implementing change can be expected without it. It is, in the final wash, the human spirit that moves mountains and ideas, and it is the zest for life and accomplishment, the challenge of a tough assighment, that spurs us on. Without zest and optimism man is capable of the mundane; with it the impossible and the sublime come within his reach.

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[21] Sinclair Lewis, Main Street. New York: Harcourt, Brace and Howe, 1920. pp. 43-44.

APPENDIX

Inventory of Change-Proneness

The effort to develop introspective personal appraisal is in a stream of modern psychology, yet goes back beyond an inscription on the ancient Grecian temple at Delphi--*Gnothi seauton* (Know thyself). By raising a series of questions about one's private attitudes toward change, it is hoped that favorable conditions will be created for serious consideration and possible restructuring of attitudes and opinions that relate directly to one's beliefs about change.

The inventory can be viewed as three instruments--one for classroom teachers, one for school principals, and one for superintendents. A core of 12 questions common to all three categories is followed by additional questions addressed to specific groups.

In addition to a self-appraisal function, it is conceivable that some school systems might want to use an inventory to help check perceptions of one group against those of another. A principal, for example, might want to rate his teachers, using the teachers' inventory, and have teachers rate him, using the principals' inventory. The same procedure could be followed with the superintendent as well.

Each item on the inventory should be judged on a scale-of-seven rating. The respective ratings follow:

No, Never	No, Almost Never	Usually Not, Infre-quently	Some-times, Yes and No	Usually Yes, Fre-quently	Yes, Almost Always	Yes Always
1	2	3	4	5	6	7

Common Questions for Teacher-Principals-Superintendents

1. 1 2 3 4 5 6 7 ____________ Is your general disposition toward new ideas and programs one of open-minded optimism?

2. 1 2 3 4 5 6 7 ____________ Are you willing to try something new--something that will require extra initial effort on your part?

3. 1 2 3 4 5 6 7 ____________ Are you willing to try something new even if it may fail? (Your answer should not apply to fragmented or poorly planned and structured ideas and programs.)

4. 1 2 3 4 5 6 7 ____________ Does your selection of innovations reflect careful thought about the overall needs and priorities of your situation?

5. 1 2 3 4 5 6 7 ____________ When an educational innovation is considered, do you develop or help develop a strategy or plan of action for bringing about its successful implementation?

6. 1 2 3 4 5 6 7 ____________ Do you feel that you have sufficient freedom to initiate new programs and/or ideas?

7. 1 2 3 4 5 6 7 ____________ Do you exercise persistence and diplomacy in sticking with an innovation you would like to try, believing "powers that be" can be brought around from what may be an initial coolness?

8. 1 2 3 4 5 6 7 ____________ Are you willing to have your innovation brought under careful scrutiny by your colleagues and others with inherent possibilities of conflicting points of view--personal as well as professional?

9. 1 2 3 4 5 6 7 ____________ Do you make a special effort to read about innovations and changes in your field?

10. 1 2 3 4 5 6 7 ____________ Do you take time to consider and seek to gain greater insight into the processes of educational change?

11. 1 2 3 4 5 6 7 ____________ Do coffee hour or informal conversations include new ideas and developments in curriculum and instruction?

12. 1 2 3 4 5 6 7 ____________ Are you aware(in terms of knowing some details) of the growing importance of research, experimentation, and innovation in American education?

Specific Questions for

Teachers	Principals	Superintendents
1. Do you take the initiative in contacting other schools and/or school systems that are trying an idea or program that is of interest to you?	1. Do you encourage and/or provide leadership in developing a planned sequence (strategy) for change when your school introduces a new idea or program?	1. Does your system have a research and development program (probably more development than basic research) that has sufficient financial support to undertake meaningful projects?
2. Do you bring new ideas and developments to the attention of colleagues as well as appropriate administrative personnel?	2. Do you seek opportunities to provide your staff and your principals with constructive ideas and suggestions relating to curriculum and instruction?	2. Do you seek opportunities to provide your staff and your principals with constructive ideas and suggestions relating to curriculum and instruction?
3. Are you willing to ask yourself "why" about your teaching methods and the materials used?	3. Is your image among teachers that of an instructional leader --one interested in and supportive of new ideas?	3. Is your image among teachers that of an instructional leader --one interested in and supportive of new ideas?
4. Do you feel that your principal encourages you to innovate and to try new ideas and programs?	4. Are you willing to "stick your neck out" (assuming the idea has merit) for a teacher who is interested in trying something new?	4. Are you willing to "stick your neck out" (assuming the idea has merit) for a member of your staff?
5. Do you feel that the superintendent and the central office encourages you to innovate and to try new ideas and programs?	5. Are some staff meetings devoted to new developments and programs in curriculum and instruction?	5. Are some staff meetings devoted to new developments and programs in curriculum and instruction?

6. Do you have a systematic plan for sharing new ideas and programs with your faculty?	6. Do you have a systematic plan for disseminating new ideas and programs to administrators and teachers in your system?
7. Does the professional library in your school contain literature on the process of change?	7. Does the central professional library for your system contain literature on the process of change?
	8. Does your school system have an individual who is a specialist in innovation and the process of change and who devotes at least a portion of his time to such responsibilities?
	9. Has the board of education had an opportunity to learn about educational change, both in terms of direction as well as processes of change?

DEVELOPING A STRATEGY FOR PLANNED CHANGE

Everett M. Rogers
Michigan State University

> The tragedy is that the magnificent effort to discover knowledge is not accompanied by a similar effort to make sure that the knowledge is effectively and promptly communicated.
> (Hubert H. Humphrey, Congressional Record, March 8, 1962, P. 3396)

> How can we design a system that will continuously reform (i.e., renew) itself, beginning with presently specifiable ills and moving on to ills that we cannot now forsee?
> (Gardner, 1963, p. 3)

> It is our observation at the present time that one of the great tragedies in American education and social practice is that a large proportion of the creative inventions which are in line with good research and theory never become visible and never become appropriately transmitted from one setting and practitioner to another.
> (Ronald Lippitt, 1965)

INTRODUCTION

What is planned change? It is caused by outsiders to the social system who, on their own or as representatives of agencies of change, seek to introduce innovations into the social system in order to achieve definite goals. In the case of directed social change, the new ideas, as well as the recognition of the need for change, originate outside of the system (Figure 1).

Most of the innovations currently being introduced in U. S. schools are illustrations of planned or directed change. Seldom do we encounter much invention or spontaneous contact change in education. Examples of directed changes are PSSC, modern math, language laboratories, computer scheduling.

Behind most of the innovations in education today stand foundations, commercial companies, or the federal government.

One reason for the erosion of local authority in school decision-making and for the shift to centralization is the general need for rapid change in education. Local control was a casualty to Sputnik and to the events since 1959. Invention and spontaneous change are simply too slow. So we live in an era of directed change in education. But just how are we to optimally direct it? That is the central question of my paper today. The answers lie in a series of strategies for educational change.

In constructing these strategies, I have drawn most heavily upon research studies on the diffusion of innovations. While only a portion of these diffusion investigations were concerned with educational ideas, I believe that our strategies for change in education can profit just as much from research on agricultural and industrial innovations.

FIGURE 1. PARADIGM OF TYPES OF SOCIAL CHANGE

Recognition of the Need for Change	Origin of the New Idea	
	Internal to the Social System	External to the Social System
Internal to the Social System	I. INVENTION	II. SELECTIVE CONTACT CHANGE
External to the Social System	III. (Unlikely or Impossible)	IV. PLANNED CHANGE

There are at least two myths prevalent about planned change (Miller and other, 1967):

1. Planned change in manipulative, coercive, and conveys overtones of Brave New World and 1984.

2. Planned change is not needed because "good" innovations will succeed on their own merits.

My opinion is that planned change is necessary and need not be bad; it all depends on the nature of the strategies.

Now, let's look at three main strategies for planned change in education.

STRATEGY #1: BASE THE TOPICS INVESTIGATED ON THE FELT NEEDS OF PRACTITIONERS

Most educational research and innovation is aimed at the classroom, schoolbuilding or school system levels, yet very little of this research has been initiated at these levels, or even sparked by "felt needs" expressed by classroom teachers, principals or superintendents.

Pellegrin (1965) asserts that much of existing educational research is low in quality, weak in the insight it imparts, has avoided crucial issues, and is of dubious utility to the practitioner. Perhaps one cause of "these ills" is the fact that the practitioner or potential user and researcher have relatively little communication.

If we accept a policy that the actual research and field testing should be done by an outside force of researchers and developers, then the first step in planning change is to provide an open channel of communication bebween the researchers and the classroom teachers. We shall have more to say about how education might ideally be structured in order to obtain this linkage between scientist and practitioner.

Perhaps needs for innovations that could be met by educational results are not strongly felt in education. A school system has been likened to a domesticated animal (Carlson, 1965). Schools do not struggle for survival, they do not complete for scarce clients. Further, school staff seldom perceive that educational research could answer felt needs at the operational level.

STRATEGY #2: CREATE AN EDUCATIONAL STRUCTURE TO FACILITATE CHANGE

The hierarchical structures existing in U. S. education often act as barriers to the diffusion of innovations. Thompson (1960) observed, "An hierarchical system always favors the status quo ... the advantage is on the side of those who oppose innovations ... the advantage is on the side of veto." An hierarchical structure acts as an inhibiting force in that the organizational structure creates communication gaps both vertically (for example, between teachers and school administrators) and horizontally. Organized on the basis of regional and state boundaries and geographical districts, the diffusion of educational innovations must bridge horizontal communication canyons.

Vertical communication in formal organizations is generally likely to become distorted, filtered, or lost. In fact, some investigations suggest that formal communication is so inadequate in hierarchies that most ideas diffuse via informal, word-of-mouth channels. And the role of formal communication channels is largely that of officially confirming news already spread in the form of rumors.

I am not suggesting that there is any alternative to organizing education bureaucratically. But we should not forget that hierarchical structures are rocky seedbeds in which the seeds of innovation spread slowly, germinate haphazardly, and grow slowly. How can we organize to facilitate change in education?

Perhaps every school system needs a small part of its organization devoted strictly to renewing the entire outfit. Some institutions have created such "vice presidents in charge of revolution." For example, the University of California at Berkeley has recently appointed a Vice Chancellor for Educational Development.

Gardner (1963, p. 7) described what such a unit might do. "Perhaps what every corporation (and every other organization) needs is a department of continuous renewal that would view the whole organization as a system in need of continuing innovation." In a large school system such a self-renewal unit should (1) select appropriate innovations to meet the school's needs, (2) encourage trials and demonstrations of proven innovations, (3) seek to promote the wide-spread adoption of new ideas throughout the school.

Those at the top of large organizations know little about what goes on at the bottom level, including the needs for innovations and the results of innovations previously introduced. Janowitz and Delaney (1957) found that the higher the position of an individual in a public agency, the less knowledge he had about the agency's clients. Gardner (1963, pp. 78-79) argues that one reason for this ignorance at the top is "filtered experience". As an organization becomes larger and more complex, the man at the top must depend less on first-hand experience and more on messages which are processed up from the lower levels of the hierarchy. But such information-processing filters out emotions, sentiments, and other sensory impressions not easily expressed in words and numbers. So the picture of reality reaching the top of a school system is often a dangerous mismatch with the real world.

The solution is for the top administrator to "periodically emerge from his world of abstractions and take a long unflinching look at unprocessed reality" (Gardner, 1963, p.79). There are alternative, complementary techniques to gain feedback from the operational level. One such procedure is to create a feedback unit in the organization that routinely gathers facts from the operational level. Another is to establish an advisory committee to counsel the top administrator in conduct of the organization. How many school boards contain student or teacher representatives?

The present communication linkage is especially inadequate or nonexistent between the educational researcher who creates and develops innovations, and the practitioner who seeks to utilize the products of research (Figure 2). I suggest that we need to redesign the communication system for education. Missing are two key roles: liaison expert and change agent.

Currently, there is no one in education quite like the county extension agent in agriculture. It is his main responsibility to see that rural people in his county are acquainted with new ideas, that they can evaluate the potential utility of such innovations, and they they adopt the new ideas they feel are beneficial to them. The county agent also occasionally helps stamp out "bad innovations".

Our experience in agriculture communication systems suggests that change agents alone are not enough. It became apparent about 30 years ago that the communication problems which had existed between agricultural

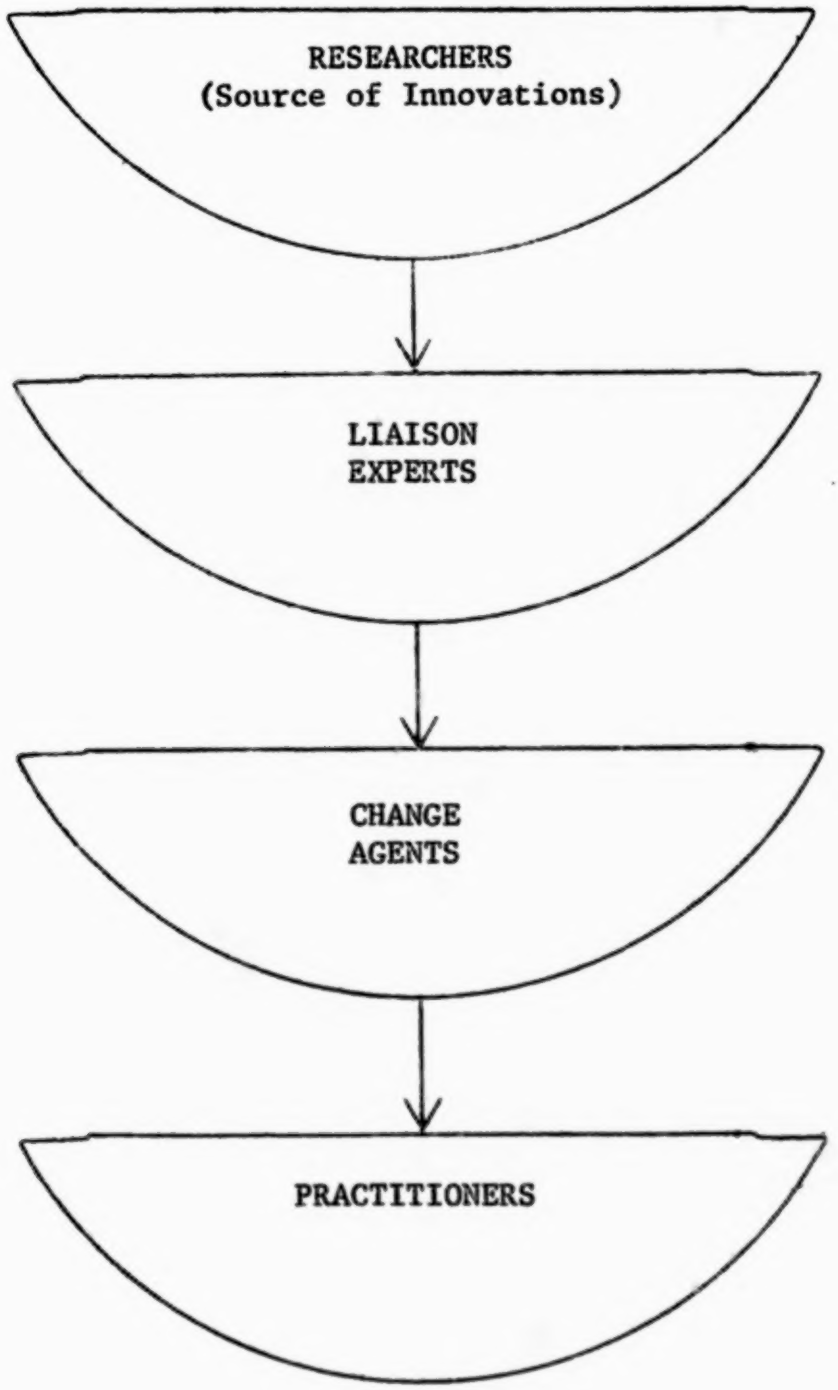
RESEARCHERS
(Source of Innovations)
LIAISON
EXPERTS
CHANGE
AGENTS
PRACTITIONERS

FIGURE 2. AN ORGANIZATIONAL SCHEME FOR THE DIFFUSION OF RESEARCH RESULTS FROM RESEARCHERS TO PRACTITIONERS.

scientists and farmers in pre-county agent days, were then occurring between scientists and county agents. They simply did not speak the same language.

And so another role was created in the state agricultural extension services, that of liaison experts. They are the county agents' county agents, as the interpreters of the scientists' results to the county agent. These liaison experts have approximately equivalent training (often Ph.D.'s) to the scientists in the state agricultural experiment stations plus an ability to speak the county agents' language. Such ability to empathize with an heterophilic receiver is often created on the liaison expert's part by prior work as a county agent.

Such liaison roles are needed in education, as in agriculture. Their absence creates complaints by teachers and school administrators that research reports are not understandable, and outcries from researchers that their findings are not properly utilized.

Not only would such liaison and change agent roles in education facilitate the "downward" diffusion of innovations; such a communication system would also encourage the "upward" flow of felt needs from practitioners (Figure 3). The more adequate communication of research needs to the scientists will lead to inquiry more accurately focused upon real problems. In the past, educational research has often not been squarely directed at the highest priority needs of the practitioners.* In short, we scratched where they didn't itch.

STRATEGY #3: RAISE THE PRACTITIONERS' ABILITY TO UTILIZE RESEARCH RESULTS

The language of research is quite different from the language of

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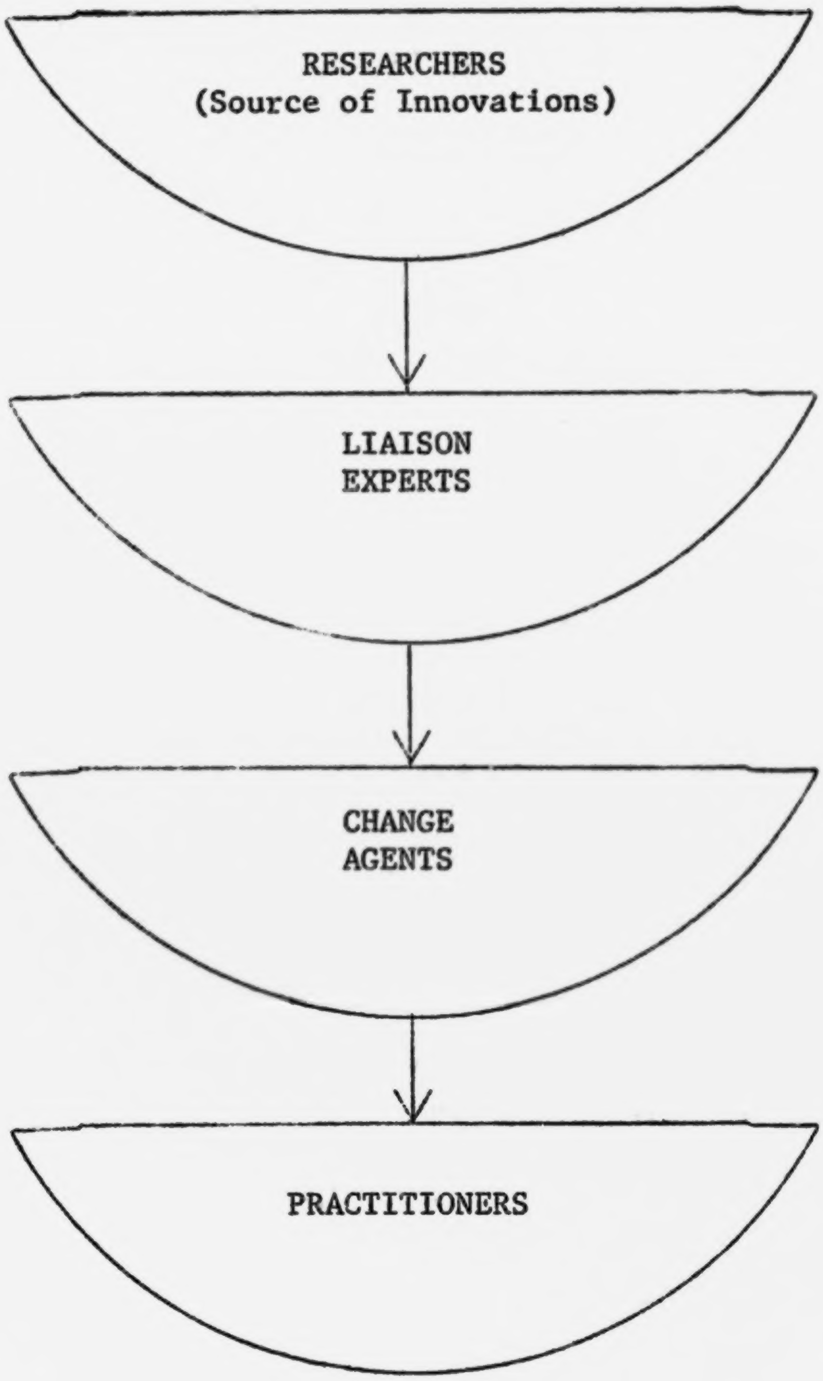
*In fact, most educational research sponsored by the federal government is initiated by the researcher who makes a proposal, rather than by the sponsor who passively receives the proposals and then selects from among them.


RESEARCHERS
(Source of Innovations)
LIAISON
EXPERTS
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PRACTITIONERS

FIGURE 3. AN ORGANIZATIONAL SCHEME FOR THE COMMUNICATION OF RESEARCH NEEDS FROM PRACTITIONERS TO RESEARCHERS.

practice, and we commonly encounter communication problems between scientists and practitioners in any field. This is also true in education.

The consequences of educational innovations are difficult to isolate and evaluate. As a result, the decision-making process involved in adoption or rejection is at best ambiguous, and must necessarily be based upon the subjective judgment of individuals in charge. The difficulty for educational administrators was posed by Clark Kerr (1964, pp. 106-107).

> How to identify the 'good' and the 'bad' [innovations], and how to embrace the good and resist the bad.... These obligations... to pace the rate of change, and to discover the method of change that will do least damage to traditional processes fall primarily on the reluctant shoulders of the administrator.

Educational innovations seldom have high relative advantage over previous practice, and the consequences of these innovations are often difficult to evaluate. New ideas in education often represent only small beneficial increments of advantage over ideas that replace. Seldom do educational innovations produce such vividly pronounced effects as the economic windfalls of hybrid corn in agriculture or the curing powers of penicillin in medicine. Many new ideas in education are social-scientific in nature, rather than physical or material.

So we are faced for the most part with innovations that are perceived as (1) having relatively low advantage, (2) being low in visibility, and (3) having consequences that are often difficult to evaluate in the short range. Consequently, educators must often base their adoption decisions on a general faith in the new as being "better", rather, that on "harder" criteria of demonstrated advantage.

It has been pointed out that "If we are to disseminate research findings in education we first must produce a wide audience that understands the structure of scientific thought. With rare exceptions we do not possess such an audience in education today...." (Halpin, 1962, p. 180).

Lippitt (1965) agrees:

"... The practitioner needs direct training in learning to be a consumer of science and of scientific resources in order to be an effective user of scientific knowledge."

Is the average teacher a good audience for research results? Does he adequately understand the scientific method, the notion of statistical testing, and how to interpret published research findings?

I do not recommend forcing several courses in statistical and research methods down the throats of teachers while they are in graduate work. Rather, we need a new type of advanced undergraduate or graduate-level course on research utilization. The focus would be upon how to interpret and apply research findings; upon research consumption rather than on production.

One can upgrade the innovativeness and the scientific-utilization ability of a school staff via personnel recruitment, selection, and training policies. Davis (1965) concluded from his investigation of a laggardly and an innovative liberal arts college that personnel policies offer one of the more direct means by which an educational institution can staff itself with innovation-minded persons. The rather high annual staff turnover rates of many schools thus offer one opportunity to select the change-prone, the self-renewing, and the cosmopolite.

A basic proposition about human behavior is that it is oriented to rewards. The obvious implication for schools is that they should reward innovative behavior by their staff if they wish to increase it. Likewise, efforts by staff to upgrade their scientific-utilization ability via graduate or other specialized training should be rewarded.

CONCLUSION

My last point is simply a warning that what I have been saying about changing education also applies to the strategies we have just discussed. Strategies for promoting change should themselves be constantly changing. So please regard the present paper as a temporary list of strategies, to be supplanted by improved strategies at a later date as these accomplish their purpose.

FOOTNOTES

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2. Richard H. Davis (1965), *Personal and Organizational Variables Related to the Adoption of Educational Innovations in a Liberal Arts College*, Ph.D. Thesis, University of Chicago.

3. John W. Gardner (1963), *Self-Renewal: The Individual and the Innovative Society*, N. Y., Harper and Row.

4. Andrew W. Halpin (1962), "Problems in the Use of Communication Media in the Dissemination and Implementation of Educational Research", in Keith Goldhammer and Stanley Elam (eds.), *Dissemination and Implementation*, Bloomington, Indiana, Phi Delta Kappa.

5. Morris Janowitz and William Delany (1957), "The Bureaucrat and the Public: A Study of Informational Perspectives", *Administrative Science Quarterly*, 2: 141-142.

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8. Richard I. Miller and others (1967), *Catalyst for Change: A National Study of ESEA Title III (PACE); Notes and Working Papers Concerning the Administration of Programs Authorized under Title III of Public Law 89-10, The Elementary and Secondary Education Act of 1965 as Amended by Public Law 89-750*, Washington, D.C., U.S. Government Printing Office.

9. Ronald S. Pellegrin (1965), "The Place of Research in Planned Change," in Richard O. Carlson (ed.), Eugene, University of Oregon, Center for the Advanced Study of Educational Administration.

10. Victor A. Thompson (1960), "Hierarchy, Specialization, and Organizational Conflict," *Administrative Science Quarterly*, 5: 485-521.

THE EXPECTED ROLE OF PROGRAM PLANNING AND DEVELOPMENT IN CALIFORNIA

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It is a pleasure to be here today and to participate in this symposium on the application of system analysis and management techniques to educational planning. My comments on this subject today are based principally upon the results of four studies in education which we of Arthur D. Little, Inc., have carried out here in California, and upon our background in organizational planning and development in business and industry. The four studies I refer to include the Phase I study for the California State Board of Education which resulted in our report, The Emerging Requirements for Leadership for California Education, published in November, 1964. The purpose of that study was to define some of the major problems and opportunities of the public education system in California which might be ameliorated or exploited through different styles of leadership and different kinds of service from educational administration at the State-level.

The second study was carried out for the California Association of School Administrators and addressed the issues and the process of staffing planning in school districts.

The third study was one which forecast teacher supply and demand to 1975, and which identified emerging problems and recommended actions to solve the problems.

The fourth study, and the one with which I will be most concerned today, is one we have just finished for the State Board of Education and for the State Superintendent of Instruction. It is our Phase II study of the organization and operations of the State Department of Education and the State Board of Education. Last Thursday we presented the report of this study to the State Board of Education. The report is entitled, A New Organizational System for State-Level Educational Administration: A Recommended Response to Emerging Requirements for Change in California.

As background to my remarks regarding the expected role of program planning and development in California, I would like to describe very briefly our approach to this study of organization planning at the State-level of California's system of educational administration.

It will become obvious that we approach such a study with no strong sense of loyalty to established or traditional systems of educational administration; and we assume the charter to recommend any changes in regulations or statutes necessary to implement needed improvements in the system. In other words, the essential "givens" in the situation are those based on principles of applied organization theory. It is our firm belief that the characteristics of a recommended new organizational system must derive from an analysis of the functional requirements of the system, and from a careful synthesis of the many and varied operations which the system must carry out. To state it differently, we determine the emerging requirements for various functional capacities in a particular institution, and then we design an organizational system specifically to satisfy those functional and operational requirements.

This "functional approach" to organization planning included the following steps in our recent study:

1. determining the general nature of California's system of public education, defining some working models of the system's dynamics, developing and understanding of what the State-level administrative system must do, and learning the inner workings of that complex system;
2. analyzing deficiencies in the operation of the system and identifying causes of the problems;
3. conceptualizing alternative solutions to identified problems and translating the most feasible solutions into required organizational processes and necessary functional capacities;
4. integrating redefined processes and capacities into a new, rational organizational system;
5. submitting the proposed new system to critical scrutiny, testing its validity and operational feasibility, and making necessary adjustments; and
6. recommending specific actions to be taken in implementing the new organizational system.

From our several analyses in California of what State-level educational administration must do, our study team determined that there were seven broadly defined major functions which must be effectively carried out. These functions include:

1. sensing emerging needs for educational development and change;
2. assigning priorities in the allocation of resources in the context of comprehensive State plans for education;
3. providing for the design and development of improved instructional programs and services;
4. evaluating the effectiveness of educational offerings, their planning and administration, and the need to redirect or reallocate human and material resources;
5. facilitating dissemination of information regarding the nature and effects of new instructional programs and services;
6. encouraging and supporting the adoption of new educational developments which appear to have real merit; and
7. assuring the quality of educational offerings in accordance with policies established by the Legislature and the State Board.

As one reads the position descriptions and mission statements of the several elements of the State Department of Education and of the State Board, it is obvious that these seven major functional requirements by no means deal with all of the detailed operations and charters of State-level educational administration. However, these are the central functions, and most if not all of the other functions are directly related to these seven major functions just described.

We determined that these seven major functional requirements are not fully met by the current system of State-level educational administration. If these major functions are to be carried out effectively, a number of basic improvements are necessary. Specifically, the most important developmental requirements at the State-level are the following:

1. focus increased attention on and apply more and better organizational resources to long-range and comprehensive planning for public education;
2. improve the quality and effectiveness of the working relationships among the State Board of Education, the Superintendent of Instruction, and the Department of Education, and with the Legislature, school districts, intermediate units, community colleges, professional associations, and other groups and agencies important to education in California;
3. improve the quality of Departmental staff assistance to the State Board and facilitate the use of such professional assistance by the Board;
4. reduce confusion and inefficiency in planning and managing new programs, particularly those (a) funded from Federal or multiple sources, (b) requiring the use of a variety of professional skills and those from more than one division in the Department, and (c) serving population

segments which traditionally have been targets for programs and services from several divisions and bureaus;

5. catalyze educational innovations and support the adoption of new educational developments;
6. enhance Departmental capabilities for organizing and operating a Statewide educational information system and a Departmental management information system, and for serving dramatically expanded requirements for information;
7. significantly extend Departmental capabilities for the management of human resources important to education (both within and outside the Department) and capitalize further on existing talent and skills in intermediate units, school districts, universities and colleges, regional laboratories, the Department, and various other agencies;
8. stimulate more ideas and constructive ferment in education and provide for more experimentation;
9. ameliorate "divisionalitis" and facilitate the use of multi-disciplinary teams within the Department, and extend the use of qualified professionals from outside the Department in developing and evaluating new programs and services;

10. insure the design and use of appropriate evaluation techniques and systems in more comprehensive and concerted efforts to appraise the results of programs, the need for continuance, and the possibilities of reallocating resources and reassigning responsibilities;
11. further the use of program planning and budgeting within the Department and extend additional educational business management services to school districts and intermediate units;
12. rearrange organizational groupings in line with current functional requirements, including the need for improved flexibility and efficiency; and
13. improve and extend internal Departmental supporting services.

What I have talked about so far represents the results of several analyses of what State-level educational administration must do, and of a synthesis of these specific operations into the seven broadly defined functional capacities I enumerated. It also represents the essential results of our diagnostic work in identifying deficiencies and in specifying functional and operational areas which need to be improved. A further requirement is that of applying some imagination in formulating organizational processes and arrangements which will ameliorate discovered deficiencies or organizational dysfunctions, and which will more fully satisfy the extablished major functional requirements. This corresponds to Dr. Everett Roger's second strategy for planned change--create an educational structure to foster and facilitate change.

In reworking the results of our analyses, it became obvious that there were at least five major management processes which were significantly in need of improvement in the State's public education system. These are: (a) planning, (b) evaluation, (c) program development and management, (d) the management of human resources, and (e) the more effective utilization of information systems.

If you think about these five important management processes, it becomes apparent that they are highly interrelated. One cannot do effective planning without adequate means for evaluation or without the use of well-designed information systems. Program development and management cannot be efficiently carried out unless there are ample capabilities for planning, evaluation, sensitive utilization of human resources, and effective use of information. Accordingly, we concluded that if the State-level system of educational administration could be reorganized so as to focus effectively on program planning and management, and so as to embody the resources and functional capabilities necessary for effective program planning and management, most, if not virtually all, of the previously defined major functional requirements could be satisfied.

I hope the import of this conclusion is apparent. A program orientation for State-level educational administration obviously requires a different organizational system and vastly increased emphasis on the role and processes of program planning and management.

After some rather vigorous discussions within our study team concerning various alternatives we decided that the most feasible approach to establishing a program-oriented organizational system in the Department should involve the adaptation of the "project-organization system" employed by a number of high technology corporations in business and industry.

One of the factors which lead us to the decision to adapt the project-organization approach of industry to the State Department of Education was our earlier decision to attempt to develop a truly "organic" organizational system for State-level educational administration. Now, as most of you know, in the jargon of organization theorists, an "organic" system is one in which the operational and functional characteristics of an organization system are both highly interdependent, and are related specifically, that is, custom designed, to the essential functions and tasks which must be performed in carrying out the missions of the organization system. In general, state departments of education are composed of organizational elements or units which individually are oriented toward carrying out specialized functions, but interdependence and significant joint efforts among such units are typically decidedly lacking. The project-organization style of management appeared to embody a number of factors which would result in considerably more interdependence and effective interaction among elements of California's State Department of Education.

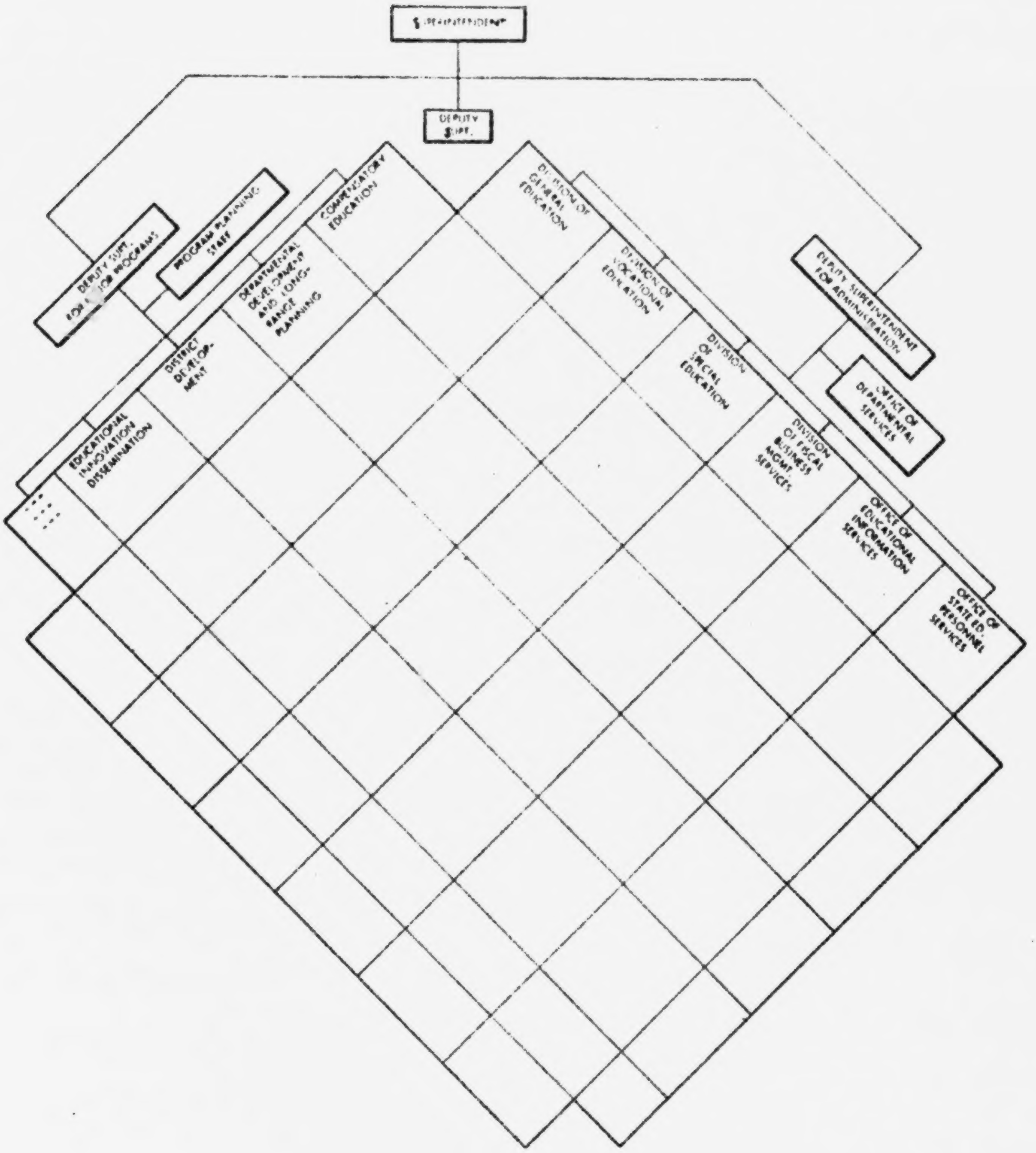
The project-organization approach in industry is usually most applicable to important undertakings which are (a) unique or unfamiliar to the organization, (b) complex in terms of the interdependence requirements among representatives of various disciplines or functional departments, and (c) definable in terms of specific goals and objectives. This approach is most common in industries characterized by (d) rapid technological change, (e) a very high proportion of professional personnel, (f) varied programs and product lines requiring large investments in development and evaluation, and importantly, (g) the use of multidisciplinary project teams for indeterminate periods of time where teams are composed of professional personnel who are obtained from a variety of functionally specialized units in the company and may participate in two or more concurrent projects.

The increased management attention resulting from effective and extensive use of project-organizations in industry has a number of effects which we believe are vitally important to the Department of Education:

1. careful and comprehensive planning is emphasized, and the rapid mobilization and efficient utilization of necessary resources is facilitated;
2. budgeting and cost control is usually more effective;
3. tasks are better defined and performance is more closely monitored;

4. action is typically initiated sooner to prevent or correct problems; and
5. project-organizations usually can evolve and change more readily than functional organizations in response to changing conditions.

The organic organizational structure we recommend for the State Department of Education is represented on the rather unusual organization chart shown on the following page. The program-organization is represented on the left-hand axis of this organizational diagram and is headed by a Deputy Superintendent for Major Programs. The administrative organization on the right-hand axis is comprised of the more traditional divisions and offices, and is managed by a Deputy Superintendent for Administration. Each major program on the left-hand axis is headed by a director. Ordinarily, he will be selected before the program begins and will participate significantly in the detailed planning and development of the program and he will be responsible for program management and for staffing the program team. The significance of this diamond-shaped organization system is that the directors of major programs can draw upon virtually the entire staff of the Department (as well as professional resources to be found outside the Department) in the selection of professional personnel as needed to carry out planned programs. The director of a major program may negotiate with any division chief or director of an office for the full- or part-time service of any member of the staff for a finite period of time;


SUPERINTENDENT
DEPUTY SUPT.
DEPUTY SUPT. FOR MAJOR PROGRAMS
PROGRAM PLANNING STAFF
COMPENSATORY EDUCATION
DEPARTMENTAL DEVELOPMENT AND LONG-RANGE PLANNING
DISTRICT DEVELOP-MENT
EDUCATIONAL INNOVATION DISSEMINATION
DIVISION OF GENERAL EDUCATION
DIVISION OF VOCATIONAL EDUCATION
DIVISION OF SPECIAL EDUCATION
DIVISION OF FISCAL BUSINESS MGMT. SERVICES
OFFICE OF EDUCATIONAL INFORMATION SERVICES
OFFICE OF STATE ED. PERSONNEL SERVICES
DEPUTY SUPERINTENDENT FOR ADMINISTRATION
OFFICE OF DEPARTMENTAL SERVICES

RECOMMENDED ORGANIC ORGANIZATIONAL STRUCTURE
FOR THE STATE DEPARTMENT OF EDUCATION

e.g., three days a week for four months and then one day a week for five months. This negotiation is carried on with the participation, as necessary, of the two Deputy Superintendents (of Major Programs and Administration). The final arbiter of decisions regarding the use of specific personnel is the Superintendent.

Basic to the implementation of this organic system is the necessary flexibility afforded by the use of temporary or ad hoc professional staff hired for specific periods of time from outside the Department. Program managers, or division chiefs, may utilize this staffing approach to fill specific short term needs. A director of a major program who has an approved budget may allocate a portion of that budget to a division chief in return for the use of one or several members of his divisional staff in accordance with their cost. The division chief may then utilize that budget allocation in hiring temporary personnel to fill in for the staff people who have transferred to the program team on a term basis.

Indications of the need for a new major program may come from a variety of sources and in different ways--from the Legislature, the State Board, from various units within the Department, from school districts or intermediate units, from advisory commissions or committees of the State Board, from professional associations, from universities and colleges, from regional laboratories or educational research and developmental centers, or from other groups and agencies important to education. There is a need to upgrade and extend the communication function of the Superintendent's

Cabinet in this connection and to establish a Major Program Planning and Coordination Committee to serve as the forum for discussing in greater detail the requirements for a new major program and for recommending steps to be followed in defining and satisfying such need.

The detailed planning in the development of a prospectus for a potential new major program is done by the Deputy Superintendent for Major Programs and his program planning staff. This more detailed development work is reviewed frequently by the Major Program Planning and Coordination Committee which includes the Deputy Superintendents of both Major Programs and Administration, the planning staff of Deputy Superintendent for Major Programs, the Director of each established and ongoing major program, the (new) Assistant Superintendent for State Board Support, and the (new) Assistant Superintendent for Departmental Program Evaluation. The Chairman of this Committee, the Deputy Superintendent for Major Programs, systematically reviews the work of the Committee with the Superintendent's Cabinet and with the State Board.

Suggested criteria or identifying characteristics of a major program, in our estimation, should include the following, in approximate order of importance:

1. the program always addresses an identified major issue or problem in education or a related set of problems;
2. skills required for program staffing are always multidisciplinary and are drawn significantly from more than one division and/or from outside the department;
3. program objectives and professional skill requirements

are always carefully defined and specified in a program plan;

4. evaluation of the degree to which objectives are achieved is always part of the program, and program planning provides for such evaluation;
5. budget is allocated to the program, there is a budget limit, and budget applications within the program are carefully planned;
6. the program always requires full-time management;
7. the program schedule frequently is time-limited, such as ten months, two years, or thirty months;
8. the program is sometimes funded from multiple sources and/or is carried out under multiple authorization.

Other general characteristics of major programs are that: (a) the need for treatment of a problem area is critical, (b) the need for action is immediate, (c) effective mobilization and utilization of appropriate resources is required, and (d) the problem is so unique or complex that the resources of any single division are not fully appropriate to the requirements. Frequently, major programs (of which there may be from four to ten) will be somewhat interrelated or at least involve complementary purposes or associated functions. This is a further reason for their being grouped under the management and supervision of a single Deputy Superintendent.

Now, let's consider some of the organizational dynamics involved in imposing this program-organization on the more traditional organization structure of the Department. First of all, you can see that there will be conflict between the interests of directors of major programs. They will compete for the best staff--those individuals who are recognized as being most professionally competent and personally effective. The fact that a major program has been planned to deal with a high priority issue in a carefully defined manner, that it has been approved, and that funding is being provided to support it, means that divisional management _must_--if only for defensive reasons--adopt a program planning and budgeting style of management. A division or office will be quite vulnerable to selective "cherry picking" unless it carefully plans its projects and its time-indefinite functions to meet high priority requirements identified in the Department's long-range planning, and in ways which specify expected contributions by individual staff members to defined objectives of the division or office. In order to justify the continuance of such projects and functions, systematic and objective evaluation studies must demonstrate the need for such continuation.

Important prerequisites to such comparisons (among carefully planned and budgeted major programs and divisional activities) are: (a) the development and periodic updating of a long-range Master Plan for public education, (b) the capability for implementing a program planning and budgeting system throughout the Department, (c) the translation of high priority concerns into comprehensive annual State plans for action and into related requirements for further development of specific Departmental services and capabilities, and (d) periodic reports based on well-designed evaluations of the extent to which the various defined objectives in the State plan have been achieved.

In this new organic system, a number of organizational dynamics related to human resource management and development get added emphasis. As long as directors of major programs are free to choose or at least to nominate those Departmental staff they want to work on their programs and are backed up, as they should be, by the Deputy Superintendent for Major Programs in their refusal to accept staff they don't want, an important message regarding perceived staff competence emerges from the pattern of invitations and refusals. Related messages regarding managerial competence also can be inferred regarding the chiefs of the divisions, offices, and bureaus whose staff are much in demand vs. those whose staff are systematically passed over. Performance appraisals of professional staff are facilitated and become more meaningful since staff contributions can be appraised in varied situations and in a broader context. Varied assignments can be planned specifically to give staff personnel opportunities to flex and develop their capabilities in new areas, or in those specific areas where they need further development.

Directors of major programs, and division chiefs too, will require a newly designed and much more extensive management information system in order: (a) to identify professional resources outside the Department (as well as inside) who would be particularly valuable on given assignments, (b) to determine whether defined objectives are being achieved according to plan, and (c) to insure that budgets of time and funds are being expended according to plan.

The proposed new emphasis on program development and management in the State-level system of educational administration thus requires new styles of management, a new organizational structure, and a new set of extended capabilities. The organizational changes we recommend include provisions for:

1. More attention to and increased capacity for the management, development, and more effective utilization of human resources important to education (e.g., an expanded and strengthened Office of State Education Personnel Services; and the development and maintenance of a comprehensive inventory of professional resources both within and outside the Department potentially useful to major programs within the Department or as consultants and problem-solving resources to local districts and intermediate units);
2. An increased capacity for gathering, processing, and utilizing information important to education.

This includes a new educational information system (e.g., Educational Reference Consultants, Audits and Approvals Consultants, State Educational Advisors, the new Office of Educational Information Services, etc.) and also a new Departmental management information system (e.g., implementation of a program planning and budgeting system, two new bureaus in the Division of Fiscal and Business Management Services to carry out financial and purchasing planning studies, plus provisions for assisting managers in the Department in planning, monitoring, and evaluating activities they are responsible for);

3. An increased capacity for short- and long-range planning. The roles and functions of groups and individuals in the Department are differentially restructured to provide for a more sensitive, comprehensive, and integrated planning system. Organizational changes recommended to implement and support improved planning include:
   a. redefined relationships among the State Board, the State Superintendent, and the Department, and with the Legislature and other groups significantly concerned with educational planning;
   b. the use of three Deputy Superintendents instead of two (one of which assists the Superintendent

in communications and planning with agencies and groups outside the Department);

c. expansion of the planning role of the Superintendent's Cabinet;

d. appointment (on a term basis) of a Coordinator of Departmental Reorganization to assist the Superintendent and the Board in planning and implementing near-term organizational changes;

e. establishment of a Major Program Planning and Coordination Committee;

f. selection of a small planning staff for the Deputy Superintendent of Major Programs;

g. establishment of a major program for Departmental Development and Long-Range Planning, and the selection of a director who is also responsible for coordinating the development of a long-range Master Plan for public education, a statement of long-range objectives and priorities which represents a context within which various elements of the State's educational system and agencies important to education can conduct their planning;

h. selection of an Assistant Superintendent for State Board Support (a new position) who also coordinates the development of a comprehensive annual State Plan for public education, a vehicle for collaborative planning with other groups and a statement of near-term objectives, plans, and budgets;

i. selection of an Assistant Superintendent for Departmental Program Evaluation (a new position) who also directs the development of an Annual Report on Public Education, a review of progress toward objectives defined in last year's State Plan which represents the State Board's and the Department's stewardship of education to the people of California; and

j. the use of improved information systems in the planning carried out by individuals and groups named above plus other managers of major programs and divisional projects.

4. Systematic and objective evaluation of all Departmental activities. Organizational changes recommended to support upgraded and extended evaluation activities include:

   a. appointment of an Assistant Superintendent for Departmental Program Evaluation (a new position mentioned earlier) who is also responsible for quality assurance in the design of evaluation studies planned or conducted within the Department, and for chairing the Departmental Research Committee (which reviews all proposed evaluation studies);

b. selection of a small staff of evaluation and research design specialists who assist the Assistant Superintendent and are members of the Departmental Research Committee;

c. appointment of Evaluation Consultants in each division who also are members of the Departmental Research Committee and assist in the detailed planning of divisional projects and evaluation studies (each of which must be reviewed and approved by the Research Committee before being authorized by the Superintendent);

d. appointment of Audits and Approvals Consultants in three divisions to insure Statewide compliance with established minimum standards, alert division management to trends of problems or deficiencies showing up in standard reports from school districts and intermediate units, and approve proposals and applications from districts for participation in certain Federal and State programs administered within divisions; and

e. establish the two recommended new bureaus in the (renamed) Division of Fiscal and Business Management Services to carry out analytical and evaluation studies to assist both the Department and school districts in purchasing decisions and in other business management functions.

The recommended organizational changes I have just enumerated represent only a portion of the total changes we recommend to establish an effective program-oriented organizational system for educational administration at the State-level in California. However, the number, scope, and implications of the changes I have mentioned--as well as the purposes to be served by changes, and the mode of derivation of the needs for changes--should suggest the tremendous importance of the role of program planning and development, as we envision it, and the critical need for the professional skills and management techniques required to plan and manage programs important to education in California.

SYSTEM ANALYSIS AND SCHOOL POLICY DEVELOPMENT

L. E. Shuck
Newport-Mesa Unified School District

GENERAL SETTING

The Newport-Mesa Unified School District was unified on July 1, 1966. As a result, three separate districts composed of Costa Mesa Union School District, Newport Harbor Union High School District and Newport Beach City School District became one. As in most unifications, there was not complete agreement and support. The larger community voted 8 to 1 for unification while the smaller community voted 9 to 1 against unification. Board members were elected and comprised members from the three already existing Boards. Their first responsibility was to select a District Superintendent and to develop basic policies to guide the overall operation of the newly unified District. A Superintendent was chosen from outside the unifying districts. This choice was made not because one or more of the existing superintendents were not capable of assuming the responsibility, but because of the tremendous uphill battle involved in the unification process.

SPECIFIC SETTING

Prior to the selection of the Superintendent, general policies and bylaws were adopted in accordance with recommendations of the Orange County Schools Office. These were not all-inclusive and did not reflect the history of the District. Since the Board was composed of experienced Board Members from the component districts, each had a slightly different interpretation of what policies were for, how they were to be formulated and what the differences were between policies, rules and regulations, and procedures. This created a situation that made it impossible for the Administration to obtain clear direction on these matters.

As a result of these conditions it became quite apparent that the system analysis approach could well be adapted to bring about a satisfactory solution to this problem. An over-simplified desciption of the application will be provided below:

NEED AND MISSION OBJECTIVES

NEED	A common agreement and understanding of policy matters and related items among the people interested in, and affected by policies, rules and regulations, and procedures. A method to develop policy for the new District that would increase the probability that a policy statement would clarify a condition and could be commonly understood by those affected.
MISSION STATEMENT	Design a Policy Development System.
MISSION OBJECTIVE	To design a system for constructing policy that will meet the current and predicted future needs of the District and that is acceptable to the Board, Administration, staff, employee organizations and community. It must be operational by December, 1966, with the majority of the primary policy topics adopted by July, 1967. This must be accomplished within existing resources and budget limitations.

PLANNING STEPS

Two sets of profiles were prepared as a basis for meeting the final objective. Please be cautioned that the profiles you will see attached violate some of the basic standards for good system analysis since they had to be tempered for communication purposes. The reason for making this caution at this point is to reduce the chance that people will see this approach as being "pure" when in actuality it is a compromise.

The first steps outlined the way in which the policy system would be developed. These included the functions as noted:

1. Obtain general requirements for policy system.
2. Determine existing policy areas of match/mis-match for component districts.
3. Develop common and mutually accepted definitions for District policy system.
4. Designate specific people, organization and policy content requirements.
5. Obtain sanction of Board, Administration, staff and others of functions 1 through 4.
6. Design Policy Development System.
7. Obtain sanction of Policy Development System and modify as necessary.
8. Implement Policy Development System.
9. Review and adjust system as necessary.

The profile for the above is entitled "Policy Development System" and shows the work plan that was used to produce the completed plan for developing policies, which is entitled "Policy Development System Profile". The reason for the similarity of these two titles is due to the fact that the first profile indicates the work plan of the Director of Research and Development and thus is not applicable to anyone outside of that specific office. The second, or Policy Development System Profile, became the center of attention for planning purposes and summarized implementation of the plan. As this plan was discussed with the Board and appropriate support personnel, it was possible to include the personal and organizational requirements during the development period and thus help to eliminate future problems as policy topics were actually being considered. This was particularly important for the staff since the postures of the component districts had been so different from each other that if some clarification were not given, it would have been impossible to evolve policy statements that contained any degree of consistency. The major breakthrough that saved much time and consideration during the stages of implementation is outlined below:

.1 It separated the policy statement from the rules and regulations, and allowed attention to be given to policy and the objectives of the policy without their being over-shadowed by the "nut and bolt" details of rules and regulations, and procedures.

.2 It provided clear evidence that there is opportunity for both formal and informal requests by the Board, Administration, staff and interested community members for a "hearing" prior to the formal development of a statement. Many were fearful that if a statement were developed prior to a hearing, the die would be cast and thus, freedom to do what really should be done would be restricted.

.3 It clarified who was to be responsible for actually developing a written statement for later readings and critiques. Some Board members had been accustomed to developing these statements themselves, and, without a formal clarification that this was to be delegated to Administration after the hearing stage, there could have been a mistaken belief on the part of some that the Administration was trying to run the Board.

.4 It provided a systematic way for policies to be introduced, heard, read, revised and adopted when criteria were met that could be easily understood by the entire District and its community. This allowed the teachers' association, as well as other organizations to be able systematically to keep track of the status of various policy topics. It also provided prior information via the Board agenda so that all concerned could make appropriate comments at either a hearing or a reading.

.5 It provided for a specified annual review of policies so that policies would not continue to be developed and/or kept unless they were of use and/or value.

.6 It provided a feasible escape hatch in the event the policy received a second or even more readings and was still found to be inappropriate for adoption. In other words, once you started something you thought would be good and then found to be unmanageable, it was possible to abandon the policy topic.

.7 It provided an opportunity for a policy topic to "mature" prior to adoption. Even though it would normally take a minimum of six weeks to introduce a policy topic before it could be adopted, it was found that this time allowed a policy statement to mature and be revised on information that became evident after the hearing and during the subsequent readings.

.8 It provided for emergency adoption of a policy in unusual circumstances in a shorter period of time.

SUMMARY

A brief overview has been provided that describes how a District had a need and employed system analysis techniques to provide a satisfactory solution. We are pleased with the plan up to this point, and yet this can only be a progress report for the major test will be "Will the policies that have been adopted really provide the guidance necessary for effective administration and implementation?". In other words, the plan has worked very well for the design and approval of policy statements; however, the real test of their implementation is yet to come. Those connected with the design of this plan have all stated that it has clarified what should happen much more satisfactorily than has ever been evident before.

NEED AND MISSION OBJECTIVES

NEED:

° A common agreement and understanding of policy matters and related items among the people interested and affected by policies, rules and regulations, and procedures.

° A method of developing policy for the new District that would increase the probability that a policy statement would clarify a condition and be commonly understood by those affected.

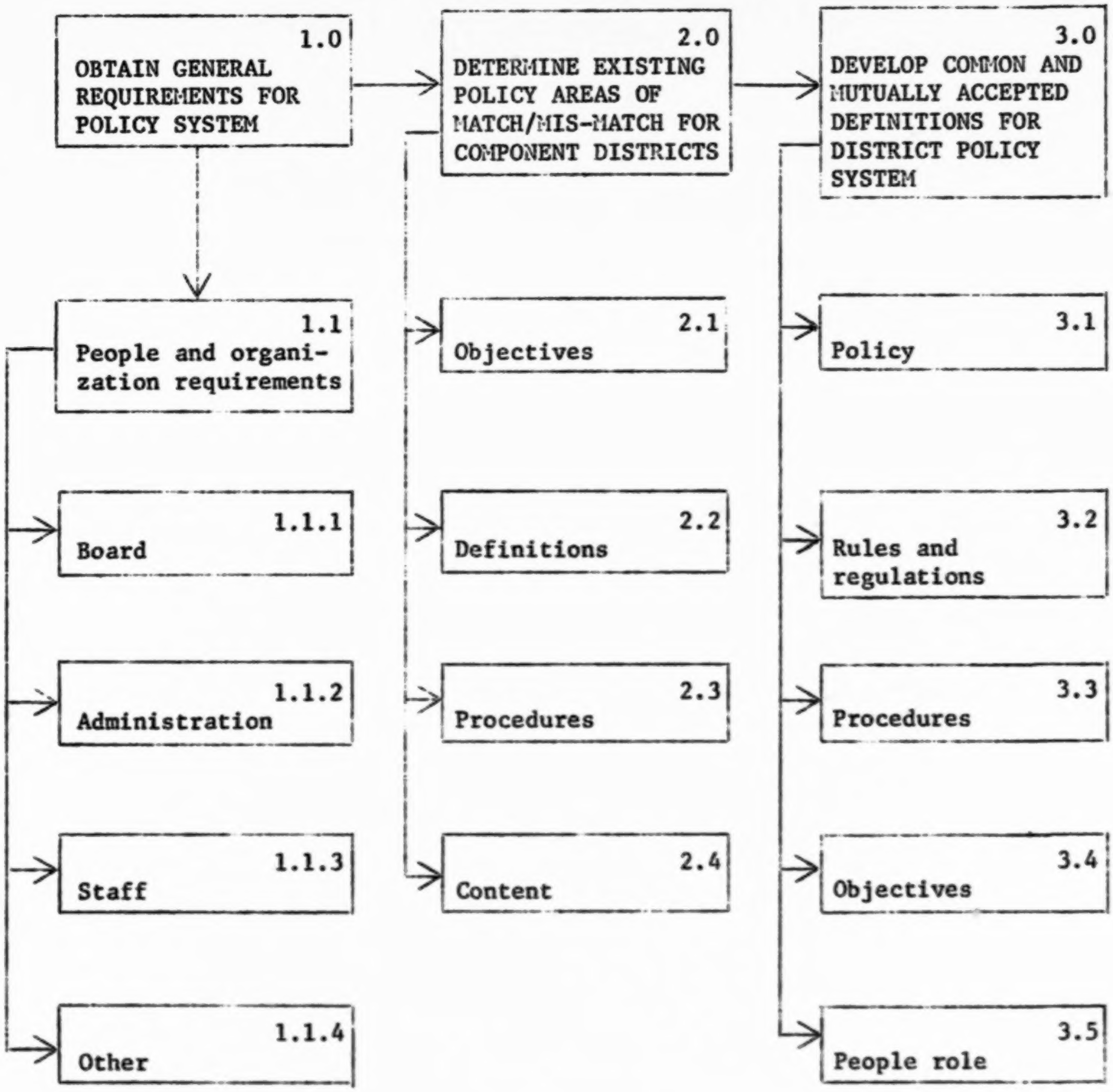
MISSION:

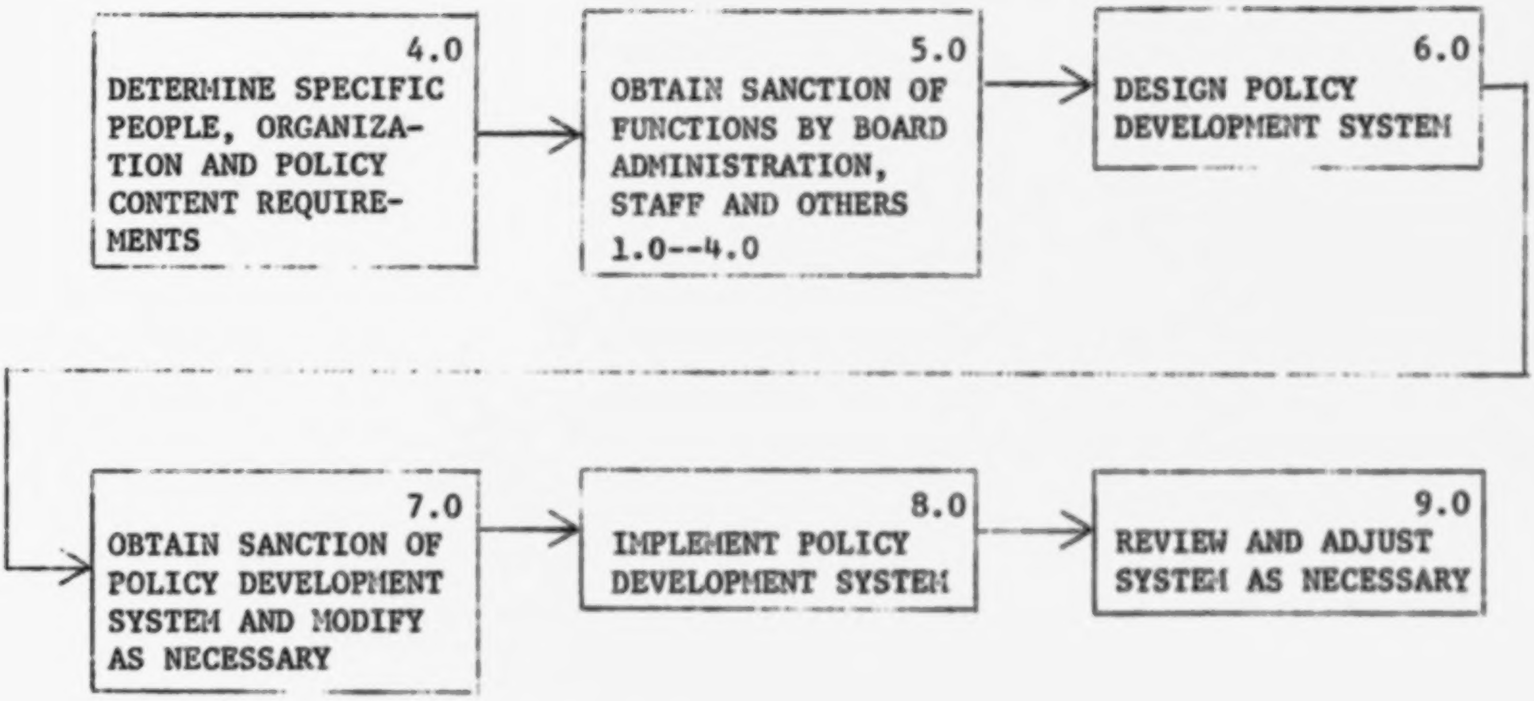
° Design a Policy Development System.

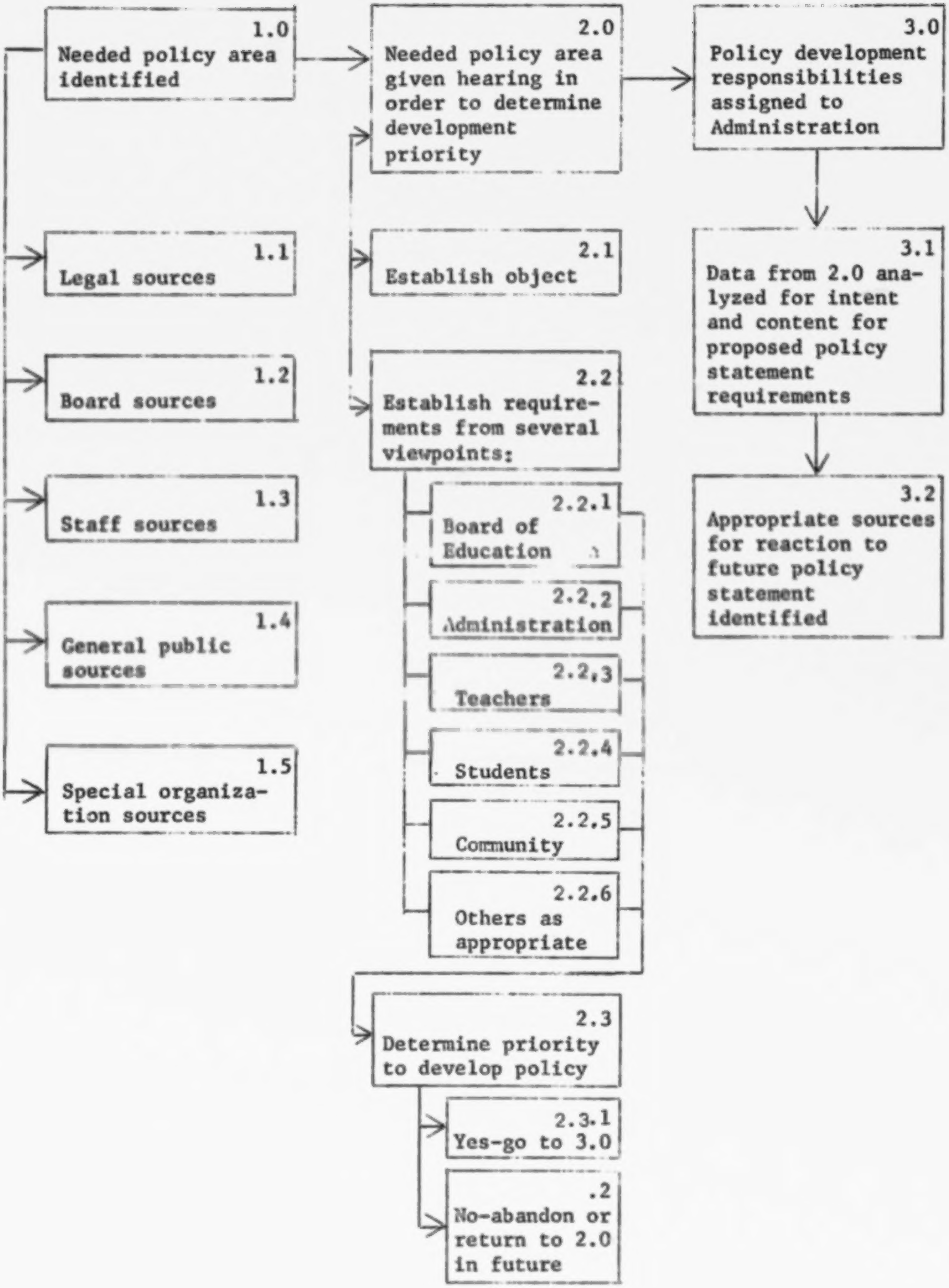
MISSION OBJECTIVE:

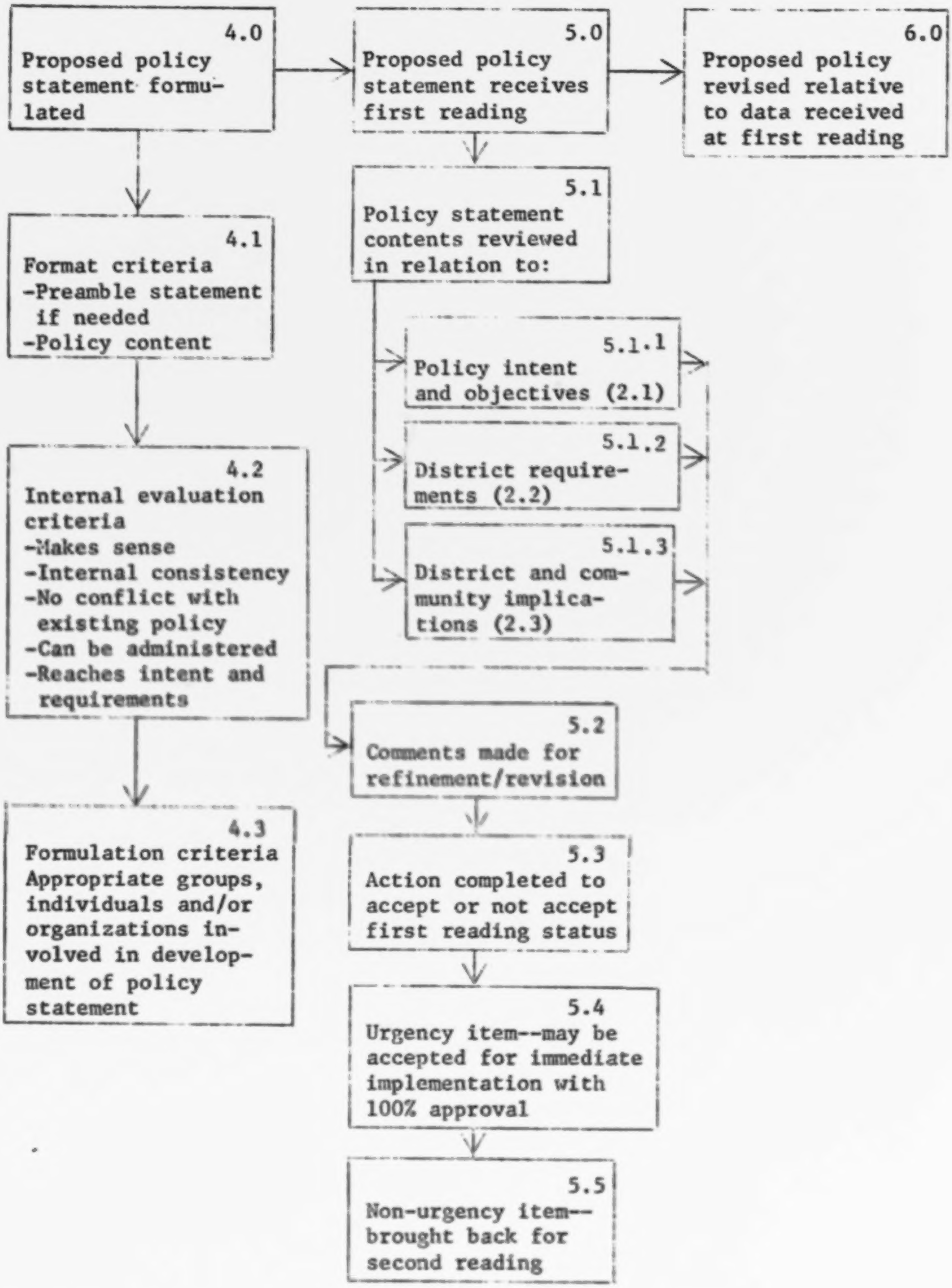
° To design a system for developing policy that will meet the current and predicted future needs of the District and that is acceptable to the Board, Administration, staff, employee organizations and community. It must be operational by December, 1966, with the majority of the primary policy topics adopted by July, 1967. This must be accomplished within existing resources and budget limitations.

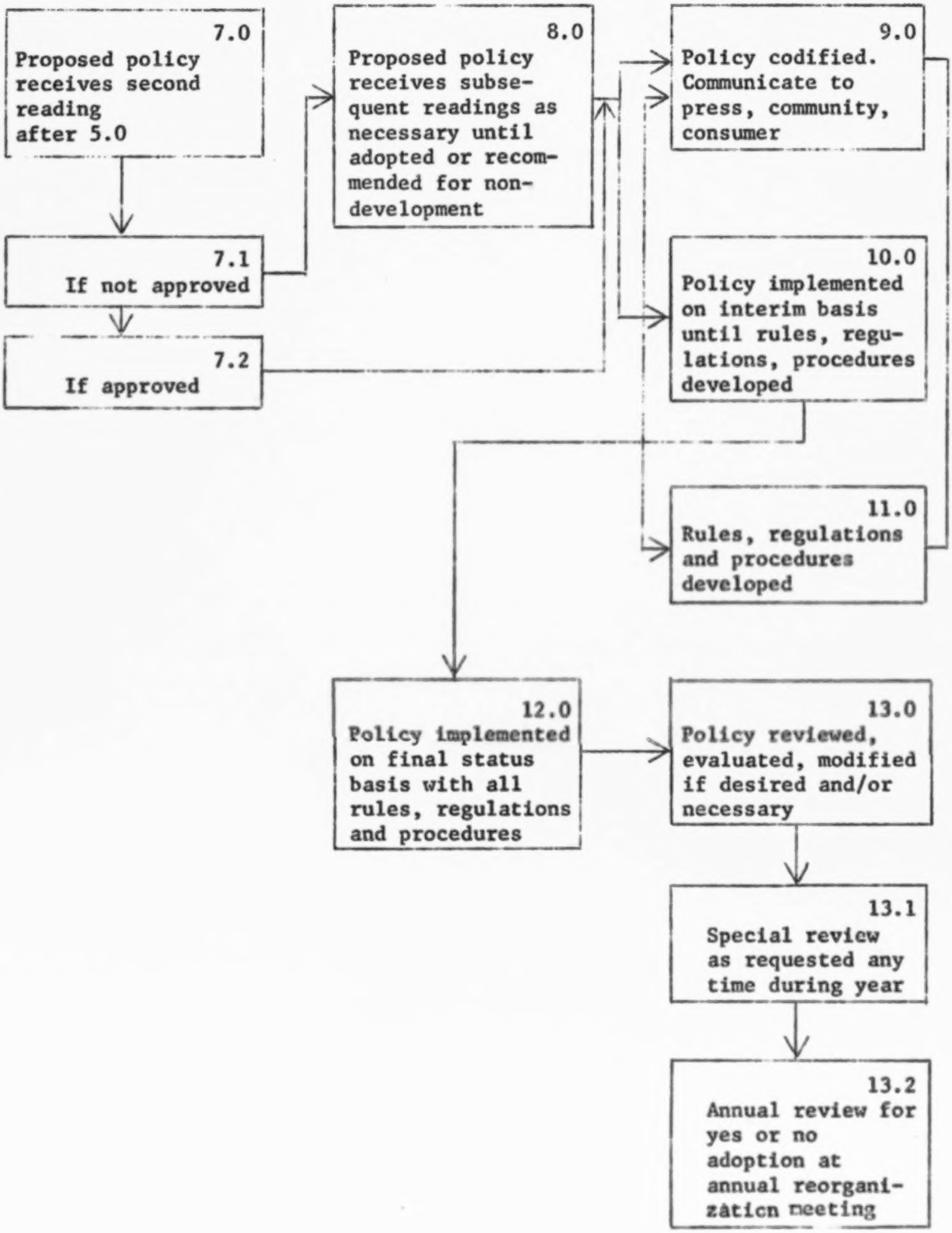
POLICY DEVELOPMENT SYSTEM


1.0
OBTAIN GENERAL REQUIREMENTS FOR POLICY SYSTEM
2.0
DETERMINE EXISTING POLICY AREAS OF MATCH/MIS-MATCH FOR COMPONENT DISTRICTS
3.0
DEVELOP COMMON AND MUTUALLY ACCEPTED DEFINITIONS FOR DISTRICT POLICY SYSTEM
1.1
People and organization requirements
2.1
Objectives
3.1
Policy
1.1.1
Board
2.2
Definitions
3.2
Rules and regulations
1.1.2
Administration
2.3
Procedures
3.3
Procedures
1.1.3
Staff
2.4
Content
3.4
Objectives
1.1.4
Other
3.5
People role


4.0
DETERMINE SPECIFIC PEOPLE, ORGANIZATION AND POLICY CONTENT REQUIREMENTS
5.0
OBTAIN SANCTION OF FUNCTIONS BY BOARD ADMINISTRATION, STAFF AND OTHERS 1.0--4.0
6.0
DESIGN POLICY DEVELOPMENT SYSTEM
7.0
OBTAIN SANCTION OF POLICY DEVELOPMENT SYSTEM AND MODIFY AS NECESSARY
8.0
IMPLEMENT POLICY DEVELOPMENT SYSTEM
9.0
REVIEW AND ADJUST SYSTEM AS NECESSARY


1.0 Needed policy area identified
1.1 Legal sources
1.2 Board sources
1.3 Staff sources
1.4 General public sources
1.5 Special organization sources
2.0 Needed policy area given hearing in order to determine development priority
2.1 Establish object
2.2 Establish requirements from several viewpoints:
2.2.1 Board of Education
2.2.2 Administration
2.2.3 Teachers
2.2.4 Students
2.2.5 Community
2.2.6 Others as appropriate
2.3 Determine priority to develop policy
2.3.1 Yes-go to 3.0
.2 No-abandon or return to 2.0 in future
3.0 Policy development responsibilities assigned to Administration
3.1 Data from 2.0 analyzed for intent and content for proposed policy statement requirements
3.2 Appropriate sources for reaction to future policy statement identified


4.0 Proposed policy statement formulated
5.0 Proposed policy statement receives first reading
6.0 Proposed policy revised relative to data received at first reading
4.1 Format criteria -Preamble statement if needed -Policy content
5.1 Policy statement contents reviewed in relation to:
5.1.1 Policy intent and objectives (2.1)
5.1.2 District requirements (2.2)
5.1.3 District and community implications (2.3)
4.2 Internal evaluation criteria -Makes sense -Internal consistency -No conflict with existing policy -Can be administered -Reaches intent and requirements
5.2 Comments made for refinement/revision
4.3 Formulation criteria Appropriate groups, individuals and/or organizations involved in development of policy statement
5.3 Action completed to accept or not accept first reading status
5.4 Urgency item--may be accepted for immediate implementation with 100% approval
5.5 Non-urgency item--brought back for second reading


7.0
Proposed policy receives second reading after 5.0
7.1
If not approved
7.2
If approved
8.0
Proposed policy receives subsequent readings as necessary until adopted or recommended for non-development
9.0
Policy codified. Communicate to press, community, consumer
10.0
Policy implemented on interim basis until rules, regulations, procedures developed
11.0
Rules, regulations and procedures developed
12.0
Policy implemented on final status basis with all rules, regulations and procedures
13.0
Policy reviewed, evaluated, modified if desired and/or necessary
13.1
Special review as requested any time during year
13.2
Annual review for yes or no adoption at annual reorganization meeting

DEVELOPING A MODEL FOR IN-SERVICE EDUCATION

Lloyd N. Garrison
Humboldt County Superintendent of Schools

Francis Larson
Humboldt County Superintendent of Schools

Jack Potter
Yolo County Superintendent of Schools

Richard Payne
Sacramento County Superintendent of Schools

MISSION STATEMENT

Design a model for use by educators for making decisions about the need and requirements for in-service education and for producing in-service programs which will achieve terminal performance specifications. The model will be considered functional if eight (8) out of ten (10) users report successful application.

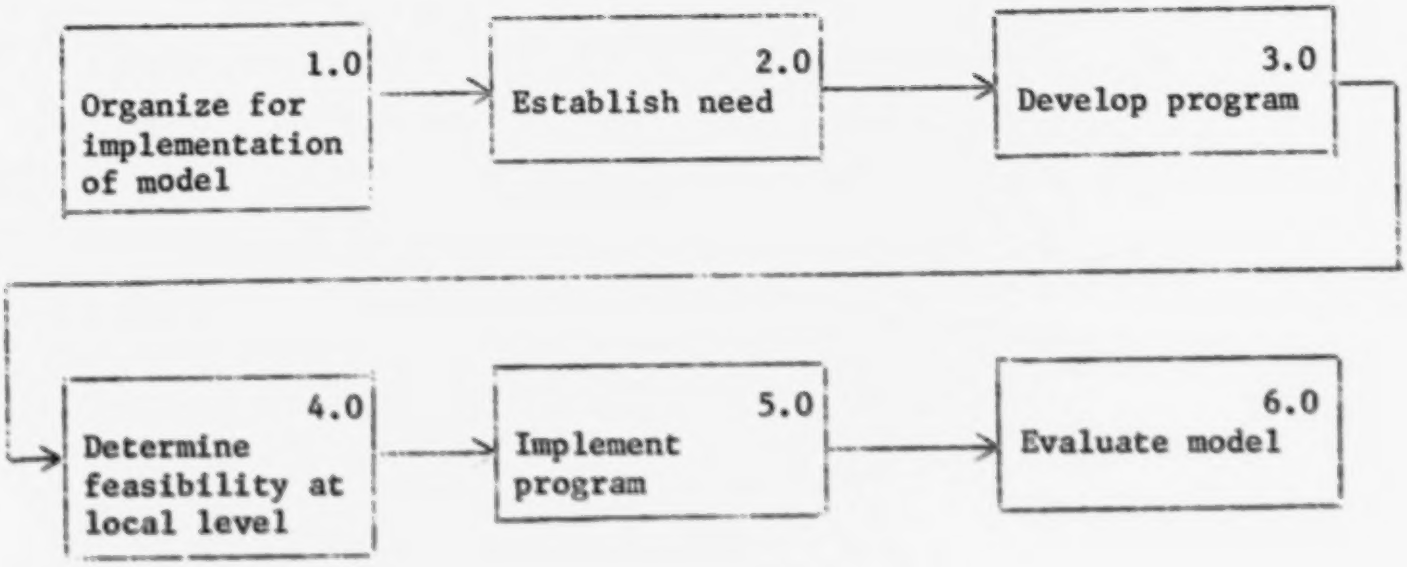
Performance requirements and parameters:

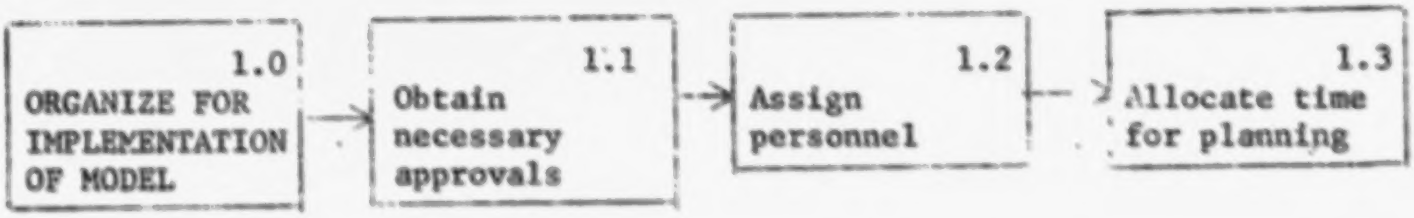
1. Can be used by any practicing educator(s)
2. Can be used with any size population
3. Will provide decision-making check points

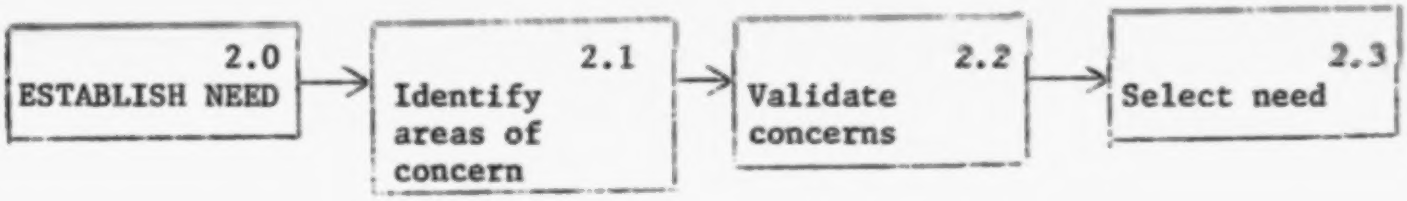
Constraints:

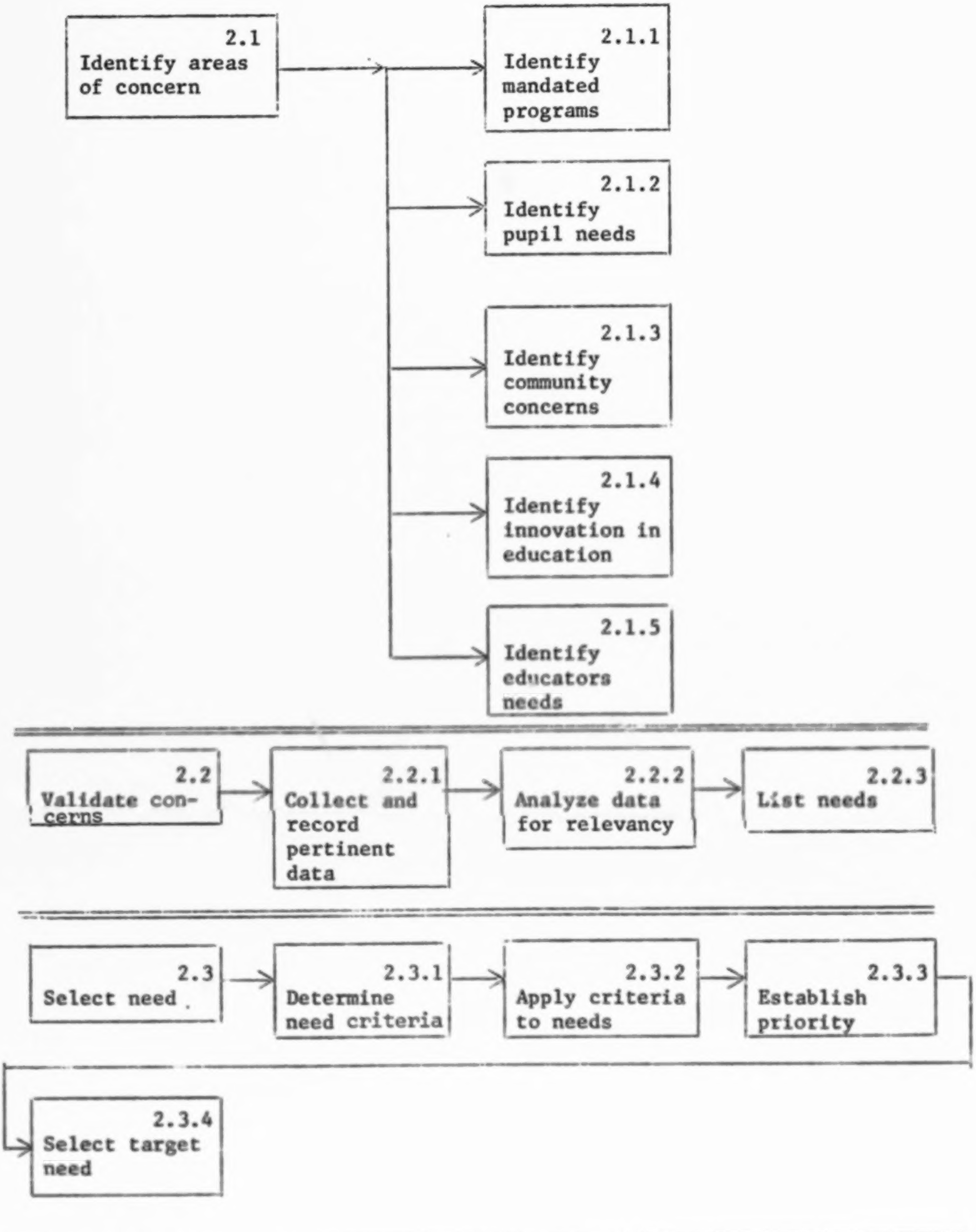
1. Resistance by educators to detailed planning
2. Field test of entire program is not feasible

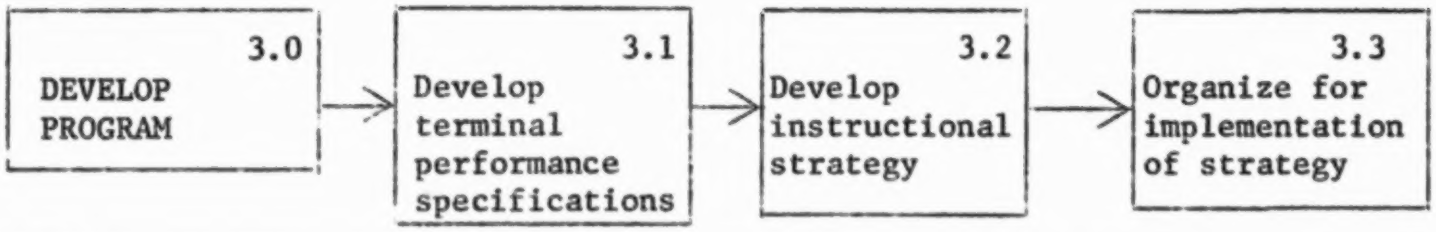
MISSION PROFILE

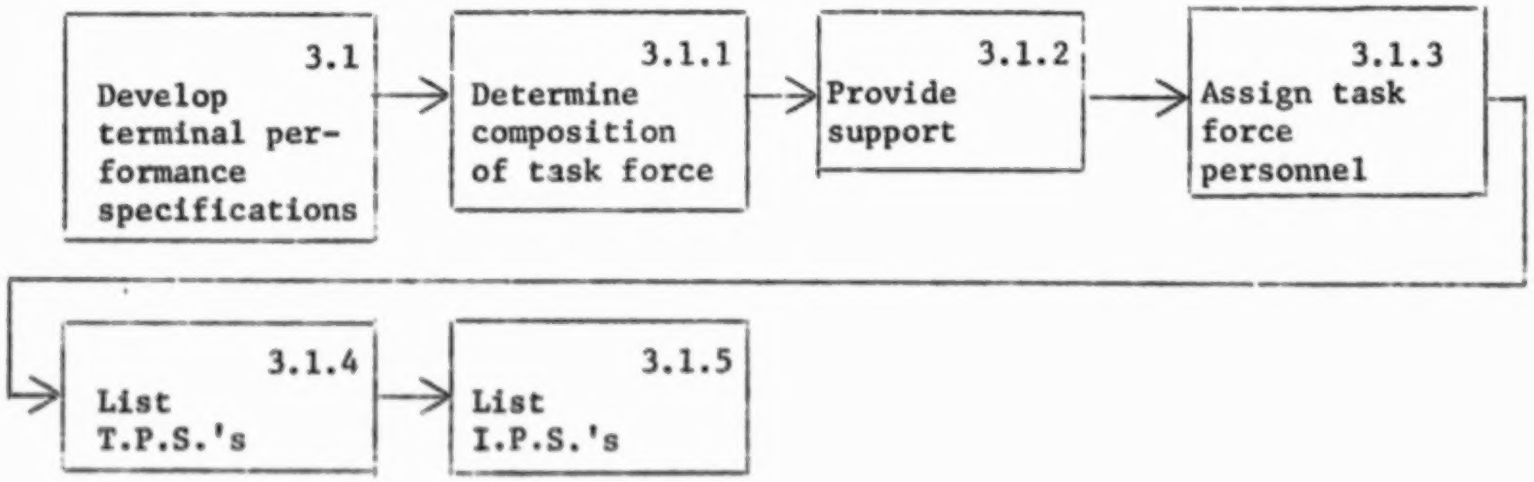

1.0
Organize for implementation of model
2.0
Establish need
3.0
Develop program
4.0
Determine feasibility at local level
5.0
Implement program
6.0
Evaluate model

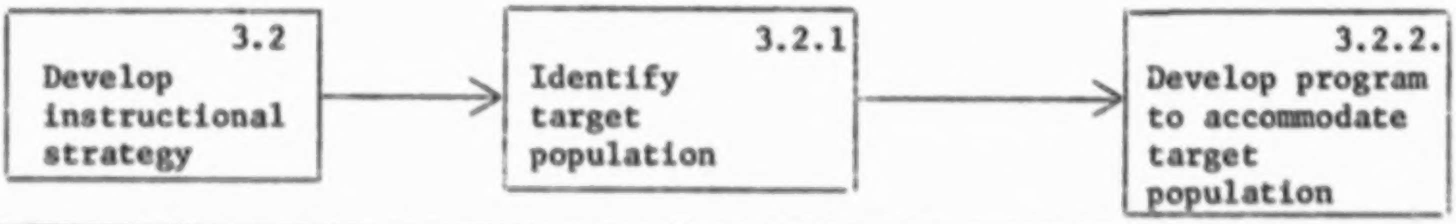

1.0
ORGANIZE FOR IMPLEMENTATION OF MODEL
1.1
Obtain necessary approvals
1.2
Assign personnel
1.3
Allocate time for planning

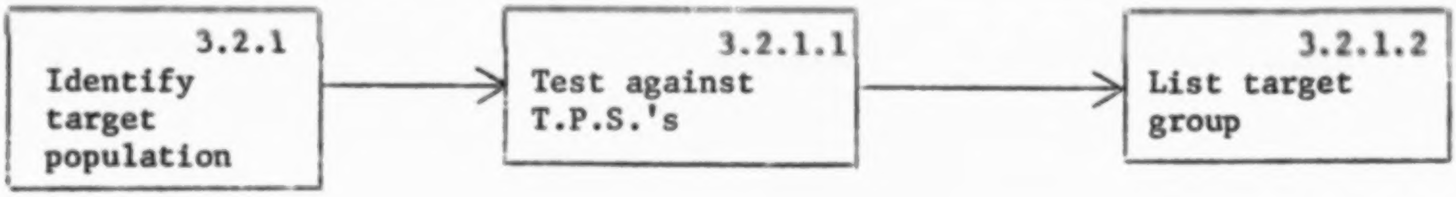

2.0
ESTABLISH NEED
2.1
Identify areas of concern
2.2
Validate concerns
2.3
Select need

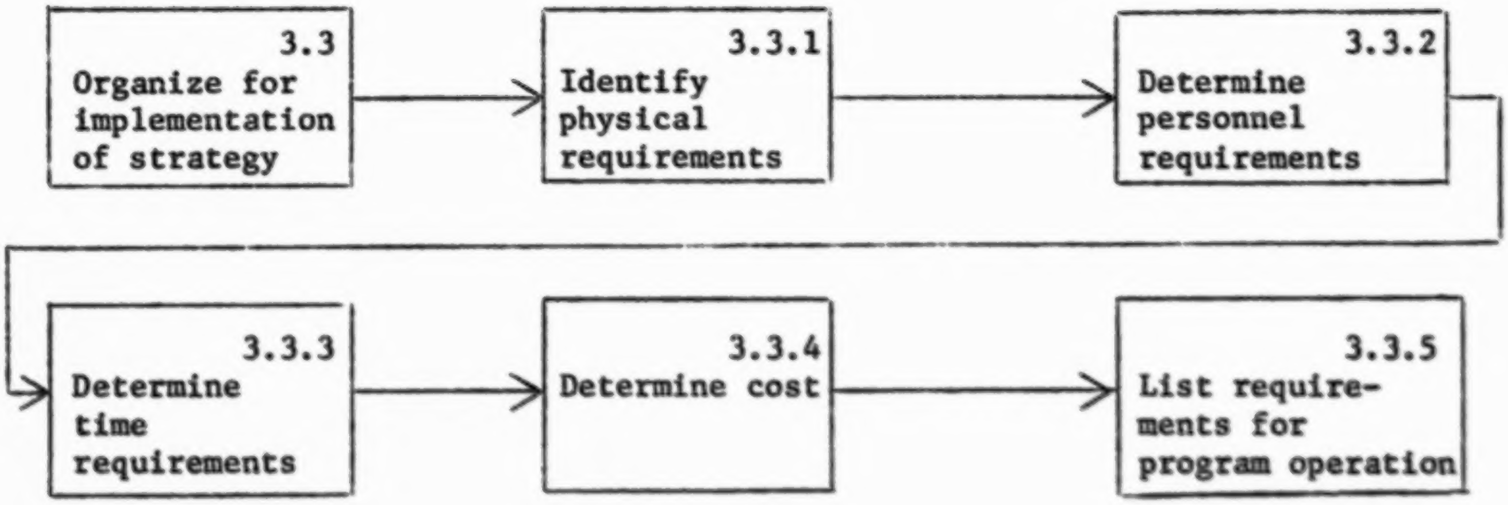

2.1
Identify areas of concern
2.1.1
Identify mandated programs
2.1.2
Identify pupil needs
2.1.3
Identify community concerns
2.1.4
Identify innovation in education
2.1.5
Identify educators needs
2.2
Validate concerns
2.2.1
Collect and record pertinent data
2.2.2
Analyze data for relevancy
2.2.3
List needs
2.3
Select need
2.3.1
Determine need criteria
2.3.2
Apply criteria to needs
2.3.3
Establish priority
2.3.4
Select target need

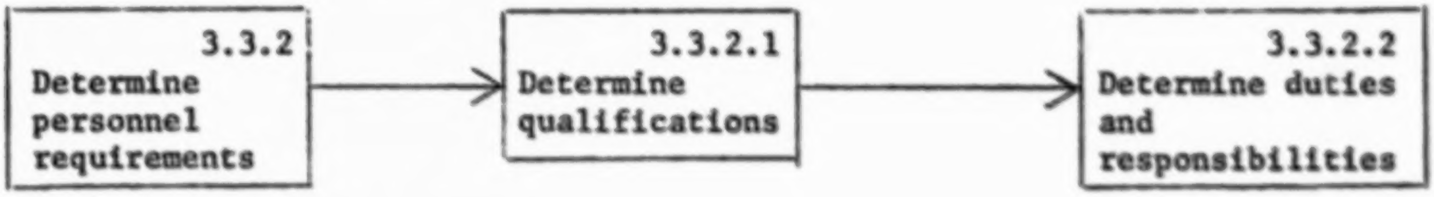

3.0
DEVELOP PROGRAM
3.1
Develop terminal performance specifications
3.2
Develop instructional strategy
3.3
Organize for implementation of strategy

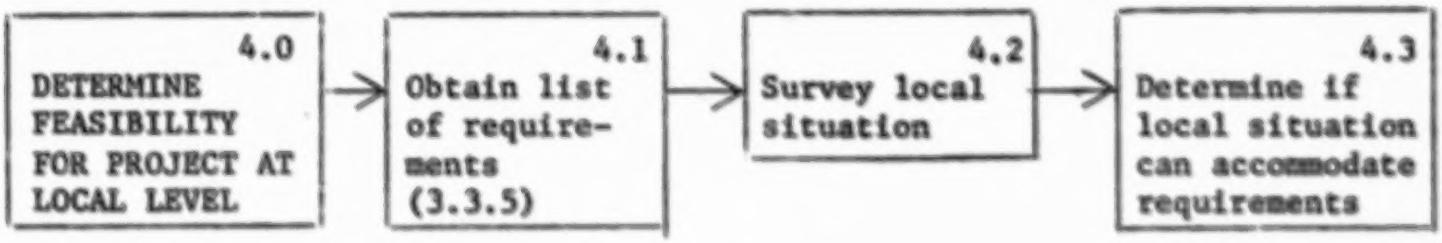

3.1
Develop terminal performance specifications
3.1.1
Determine composition of task force
3.1.2
Provide support
3.1.3
Assign task force personnel
3.1.4
List T.P.S.'s
3.1.5
List I.P.S.'s

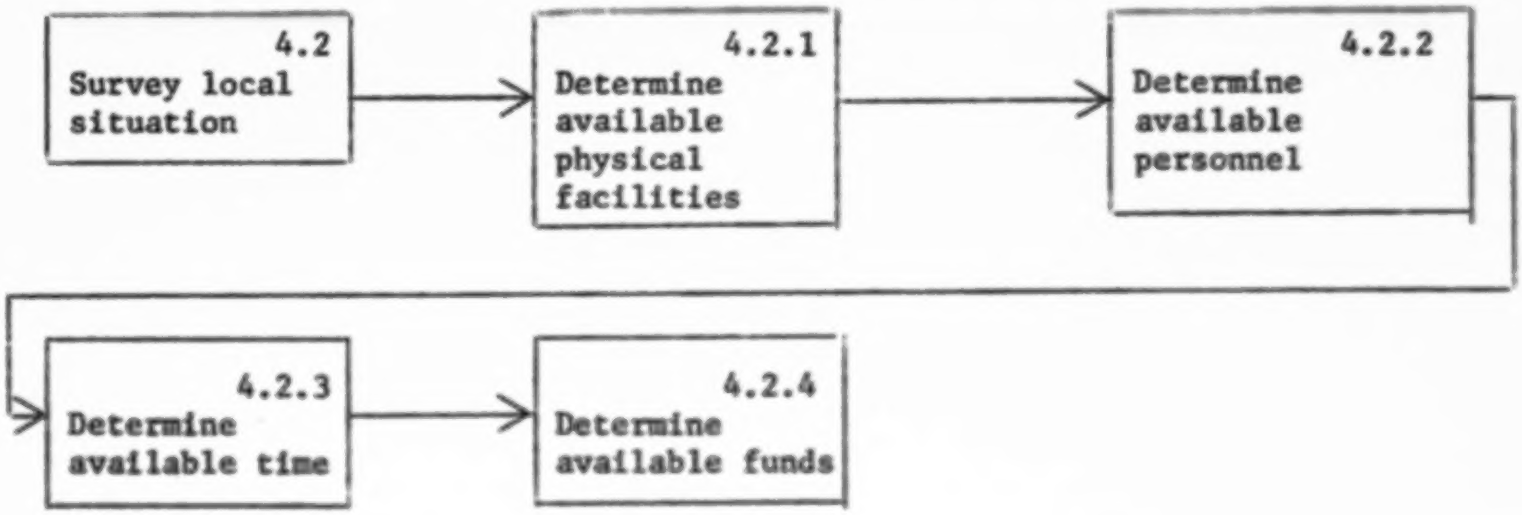

3.2
Develop instructional strategy
3.2.1
Identify target population
3.2.2.
Develop program to accommodate target population

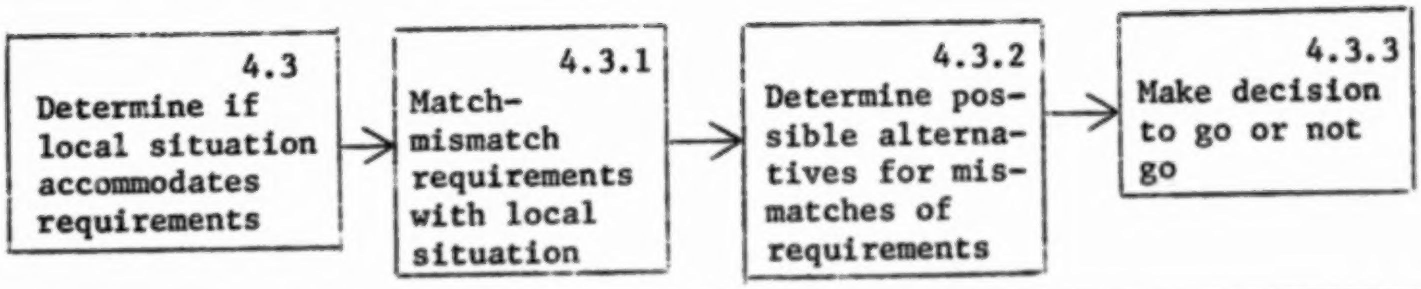

3.2.1
Identify target population
3.2.1.1
Test against T.P.S.'s
3.2.1.2
List target group

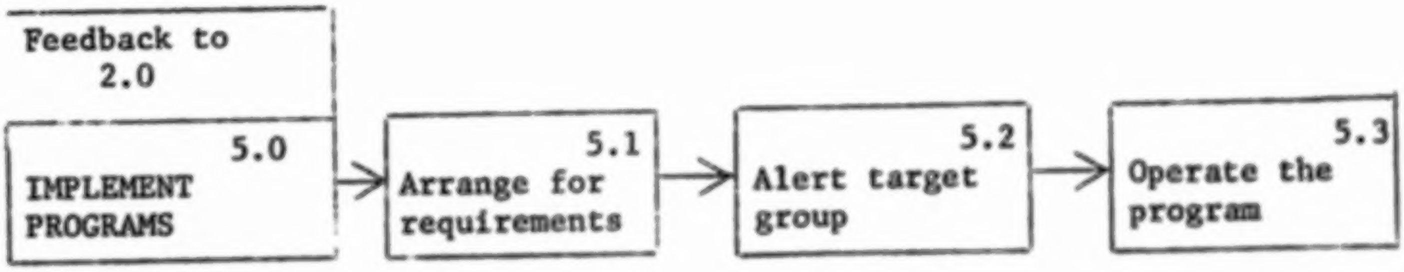

3.3
Organize for implementation of strategy
3.3.1
Identify physical requirements
3.3.2
Determine personnel requirements
3.3.3
Determine time requirements
3.3.4
Determine cost
3.3.5
List requirements for program operation

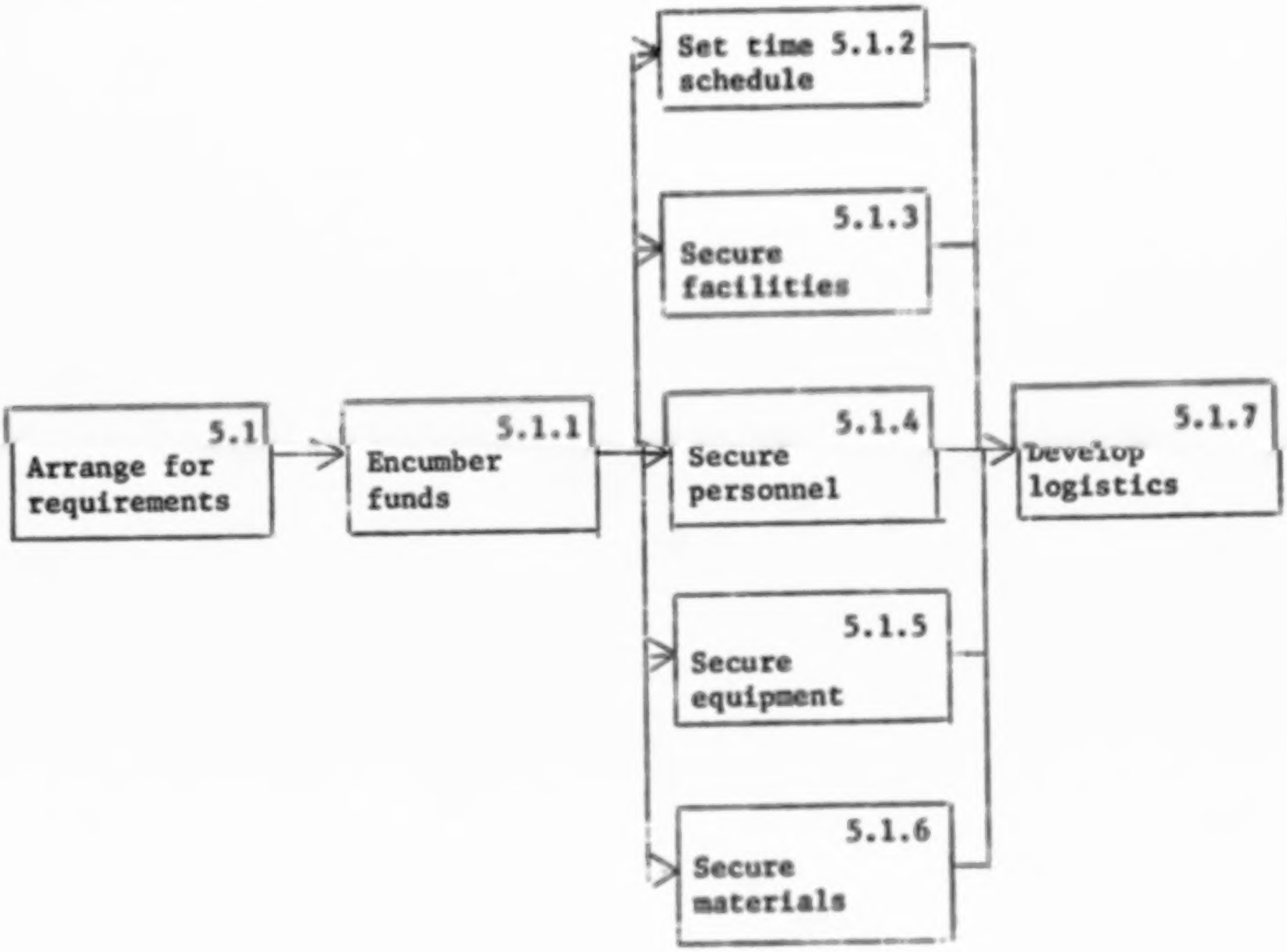

3.3.2
Determine personnel requirements
3.3.2.1
Determine qualifications
3.3.2.2
Determine duties and responsibilities

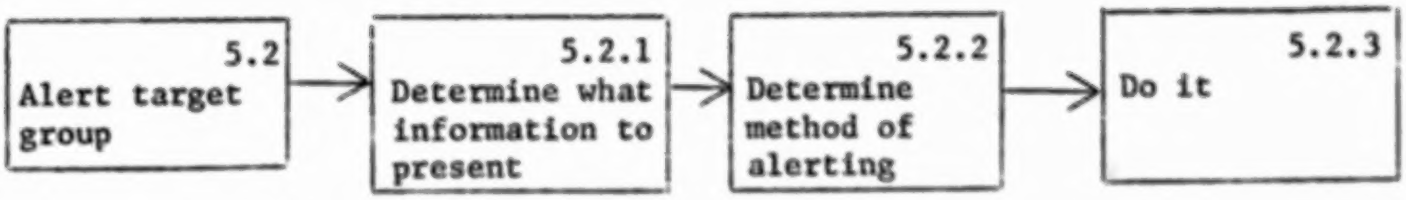

4.0
DETERMINE FEASIBILITY FOR PROJECT AT LOCAL LEVEL
4.1
Obtain list of requirements (3.3.5)
4.2
Survey local situation
4.3
Determine if local situation can accommodate requirements

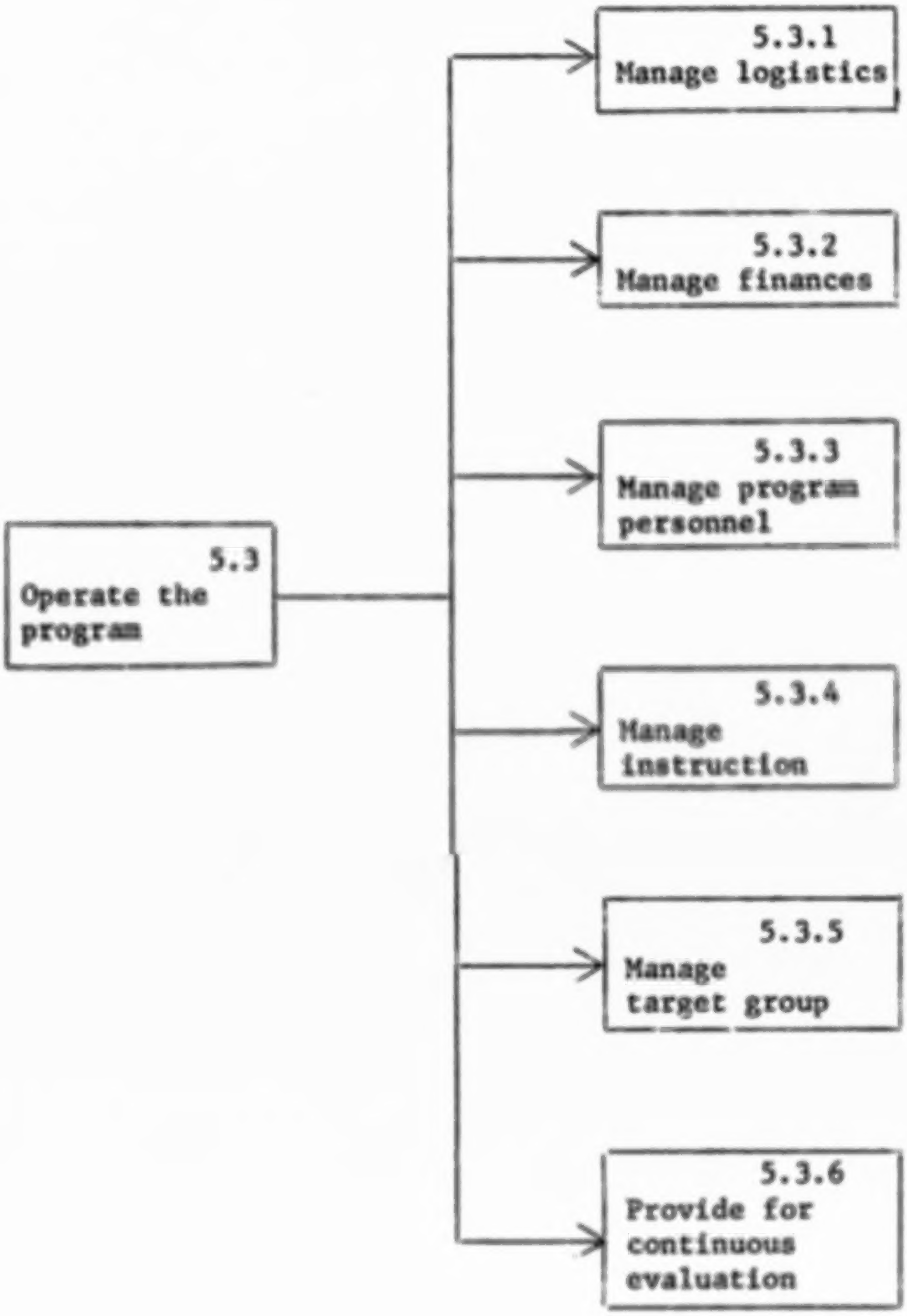

4.2
Survey local situation
4.2.1
Determine available physical facilities
4.2.2
Determine available personnel
4.2.3
Determine available time
4.2.4
Determine available funds

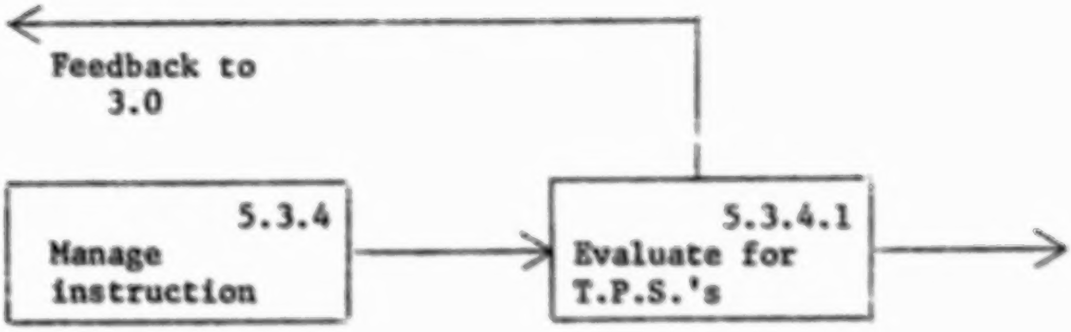

4.3
Determine if local situation accommodates requirements
4.3.1
Match-mismatch requirements with local situation
4.3.2
Determine possible alternatives for mismatches of requirements
4.3.3
Make decision to go or not go

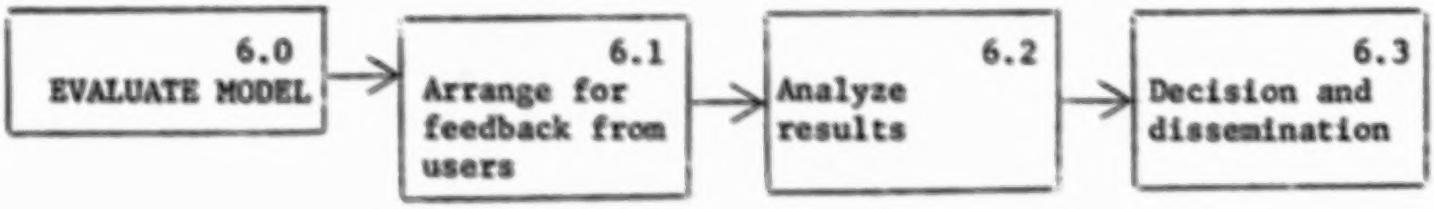

Feedback to 2.0
5.0
IMPLEMENT PROGRAMS
5.1
Arrange for requirements
5.2
Alert target group
5.3
Operate the program


5.1
Arrange for requirements
5.1.1
Encumber funds
Set time 5.1.2 schedule
5.1.3
Secure facilities
5.1.4
Secure personnel
5.1.5
Secure equipment
5.1.6
Secure materials
5.1.7
Develop logistics


5.2
Alert target group
5.2.1
Determine what information to present
5.2.2
Determine method of alerting
5.2.3
Do it


5.3
Operate the program
5.3.1
Manage logistics
5.3.2
Manage finances
5.3.3
Manage program personnel
5.3.4
Manage instruction
5.3.5
Manage target group
5.3.6
Provide for continuous evaluation


Feedback to 3.0
5.3.4
Manage instruction
5.3.4.1
Evaluate for T.P.S.'s


6.0
EVALUATE MODEL
6.1
Arrange for feedback from users
6.2
Analyze results
6.3
Decision and dissemination

APPLYING SYSTEM ANALYSIS TECHNIQUES TO THE REORGANIZATION OF A SUPPLEMENTARY CENTER

Earl D. Cornwell
and
Harry I. Wigderson

Multi-County Supplementary Educational Services Group

HISTORICAL ANALYSIS

The Multi-County Supplementary Educational Service Group was organized in May, 1966. It comprises five counties which group themselves into two geographic sections: Merced, Mariposa and Madera to the north, and Kings and Tulare on the south. Fresno county separates the two sections. The division in the service area, and the large geographic area to be served led to the decision that the staff organization should be decentralized into four offices. They were located throughout the service area, in county offices and at Fresno State College. Merced county served as the applicant agency since the proposal was originally written by a member of that staff.

A year of operation indicates that decentralization of staff creates many problems of operation. Specifically, opportunities for the staff to share ideas and work as a team can only be through pre-arranged staff meetings at excessive expenditure in time and travel. The concentration of Center resources on a single problem is, therefore, difficult to achieve. Focus of staff thinking and agreement upon methodology simply has not occurred. The lack of focus allows, and even encourages, a dissipation of capabilities which is reflected in a reduction of product achievement over the five county area.

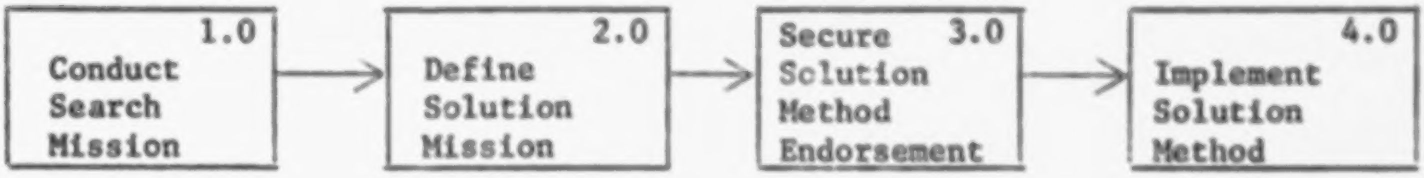
These limitations in the operational program of the Center convinced the Executive Board that some changes were required. The Board did not immediately launch into solutions, but requested a careful analysis of the total situational field in order to make program adjustments.

The analysis process is one that leads logically from needs to goals to requirements to objectives to programs. This process, which was used to resolve organizational problems and the operational program for the Center, will be outlined in this paper.

REORGANIZATION REQUIREMENTS

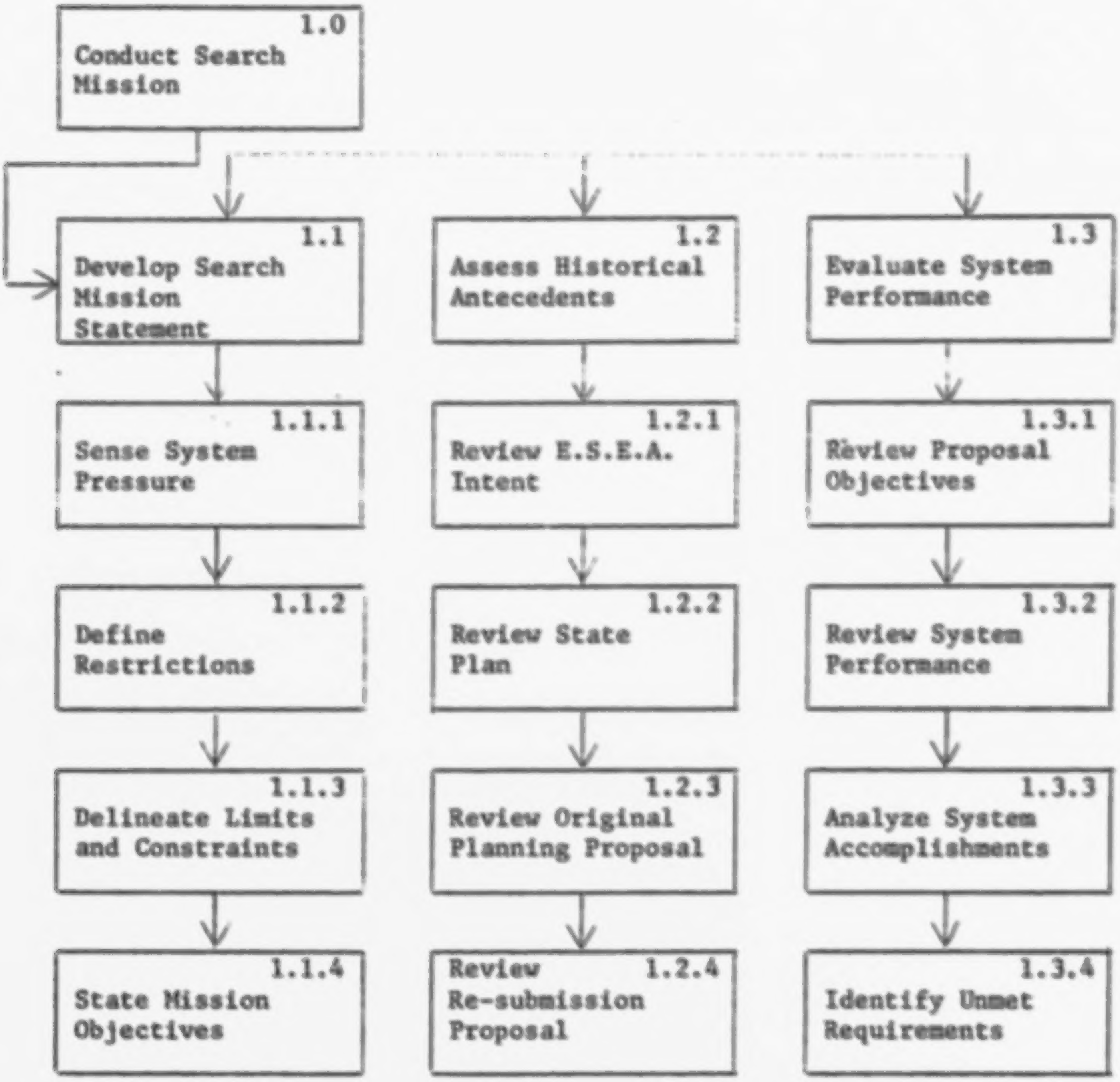
The culture, and any and all systems, make constant progress toward its goals. This steady progress is sometimes subjected to a stress of some kind which requires a mission to correct or adjust the path toward the goal. This stress may be caused by an adjustment or revision of goals, a failure of the system to perform, or the revelation of new facts. The ESEA legislation may be considered such a mission; or, on a smaller scale, so may any project funded under ESEA. In our case, we felt the need for adjustment of the operational program of the Center, and launched into corrective planning which would overcome the perceived weaknesses of the Center.

We saw our needs as a four step process encompassing what really amounted to two missions--a search mission and a solution mission.



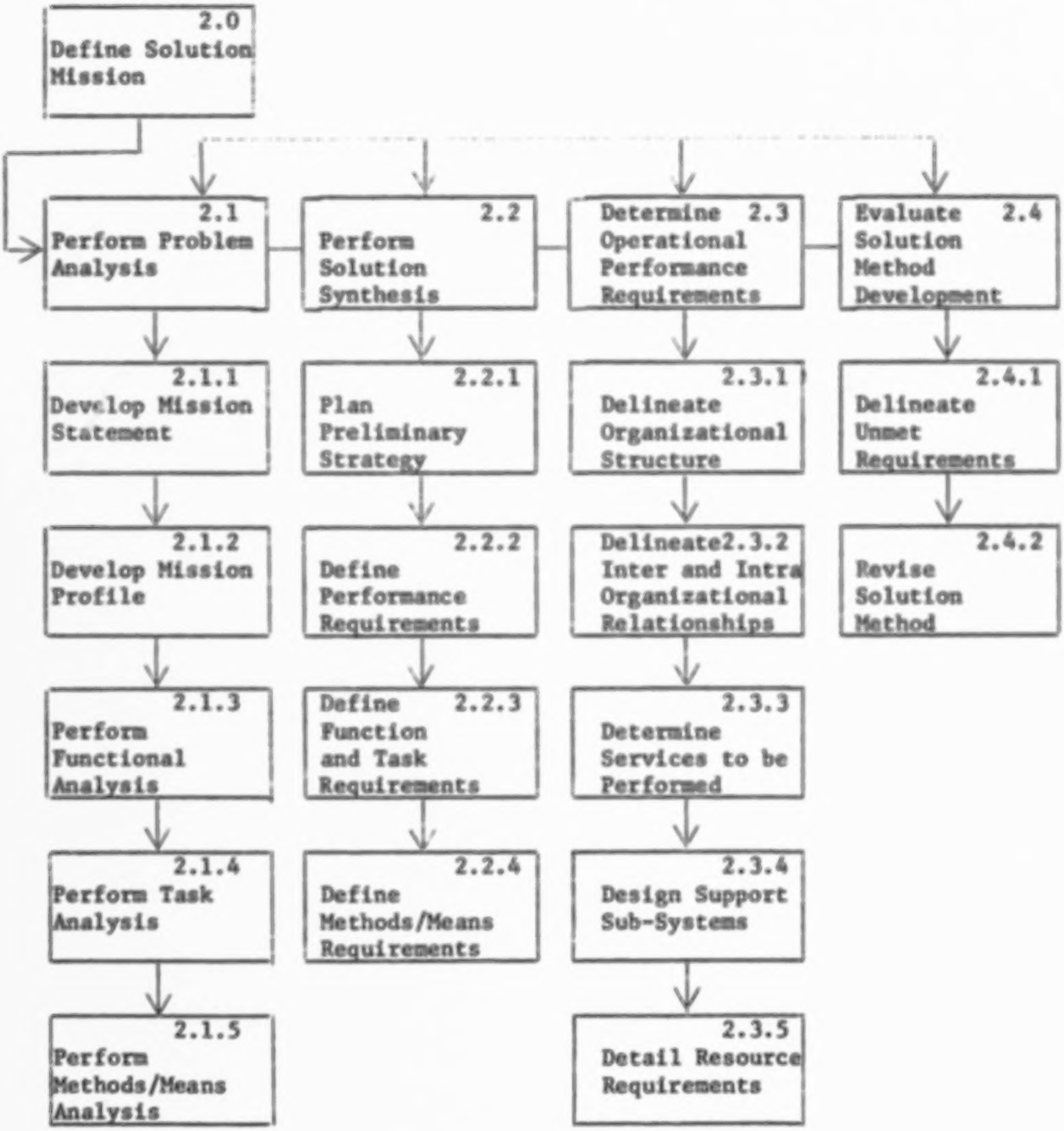
The Search Mission

The first task, obviously, resolved itself into a careful analysis of the historical performance of the Center, its legal base, its limits and constraints, the already submitted resubmission proposal, the characteristic of the service area, and the members of the educational community. This mission gave us a very real definition of the problem as it existed.


1.0
Conduct Search Mission
1.1
Develop Search Mission Statement
1.2
Assess Historical Antecedents
1.3
Evaluate System Performance
1.1.1
Sense System Pressure
1.2.1
Review E.S.E.A. Intent
1.3.1
Review Proposal Objectives
1.1.2
Define Restrictions
1.2.2
Review State Plan
1.3.2
Review System Performance
1.1.3
Delineate Limits and Constraints
1.2.3
Review Original Planning Proposal
1.3.3
Analyze System Accomplishments
1.1.4
State Mission Objectives
1.2.4
Review Re-submission Proposal
1.3.4
Identify Unmet Requirements

The Solution Mission

The second mission is actually a derivation of solutions to the problems which were identified in the first phase.


2.0 Define Solution Mission
2.1 Perform Problem Analysis
2.2 Perform Solution Synthesis
Determine 2.3 Operational Performance Requirements
Evaluate 2.4 Solution Method Development
2.1.1 Develop Mission Statement
2.2.1 Plan Preliminary Strategy
2.3.1 Delineate Organizational Structure
2.4.1 Delineate Unmet Requirements
2.1.2 Develop Mission Profile
2.2.2 Define Performance Requirements
Delineate 2.3.2 Inter and Intra Organizational Relationships
2.4.2 Revise Solution Method
2.1.3 Perform Functional Analysis
Define 2.2.3 Function and Task Requirements
2.3.3 Determine Services to be Performed
2.1.4 Perform Task Analysis
2.2.4 Define Methods/Means Requirements
2.3.4 Design Support Sub-Systems
2.1.5 Perform Methods/Means Analysis
2.3.5 Detail Resource Requirements

Specifically, this is the development of a master plan of operation for the Center--its operational program for 1967-1968.

The first task of solution mission is the development of a statement of the mission objectives of the Center. The needs of the educational institutions in the service area for a Supplementary Agency such as the Center, were defined as follows:

1. A need for assistance in identification and specification of educational problems; those problems which exist now and those which can be predicted for the future. The assessment of needs. as it has been conducted, and its future focus, should strive toward providing assistance in meeting this need.
2. A need for assistance in proposal development, whether these be in Title III ESEA, Title I ESEA, NDEA, other Federal programs, or for private grants of money. Staff members need to be selected who can provide the consultative assistance necessary.
3. A need for assistance in planning for change. This includes providing planning consultancy and information about changes which have been inaugurated in other areas or districts.
4. A need for improved communication among school districts, among county offices, and among the various schools and the homes in their communities.
5. A need for improved means of gaining information about changes, trends, concepts in education, and successes and failures in innovative programs and attempts.
6. A need for the development of an awareness of a unity identification for the service area. Mutual problems exist throughout the five counties, and it is essential that the best resources of the various districts be focused upon solutions to these problems.

It seems reasonable that the resources of the districts and county offices be augmented by the resources of the Center to develop common approaches to finding solutions to these problems.

Out of the identified needs, or requirements, the following mission statement for the Center resolves itself:

The Center will be a service agency of change in the development and implementation of innovative practices in the schools of the service area.

1.0 Disseminate information to clients concerning Title III, ESEA, and promising innovative, adaptive and exemplary programs.

2.0 Conduct a continuing assessment of educational needs which will reveal discrepancies between societal expectations and actual student performance as measured and observed.

3.0 Select for action those problems judged to be of highest priority.

4.0 Encourage the development of improved instructional solutions to high priority problems.

5.0 Assist in the implementation of the action programs developed as solutions to selected problems and disseminate the results obtained.

Restrictions

1. The Center roles defined must complement the educational roles of the County Offices, Research and Development Centers and the school districts.
2. Services and products developed by the Center must be operable within the limits and constraints of the service area and clientele.

3. The Center cannot provide services beyond those specified or implied in the written re-submission proposal.
4. The Center service offering is restricted by geographic factors and conditions: the five counties, the relatively sparse population, and the divisive effect of the urban Center which is not a part of the service area.

Limits

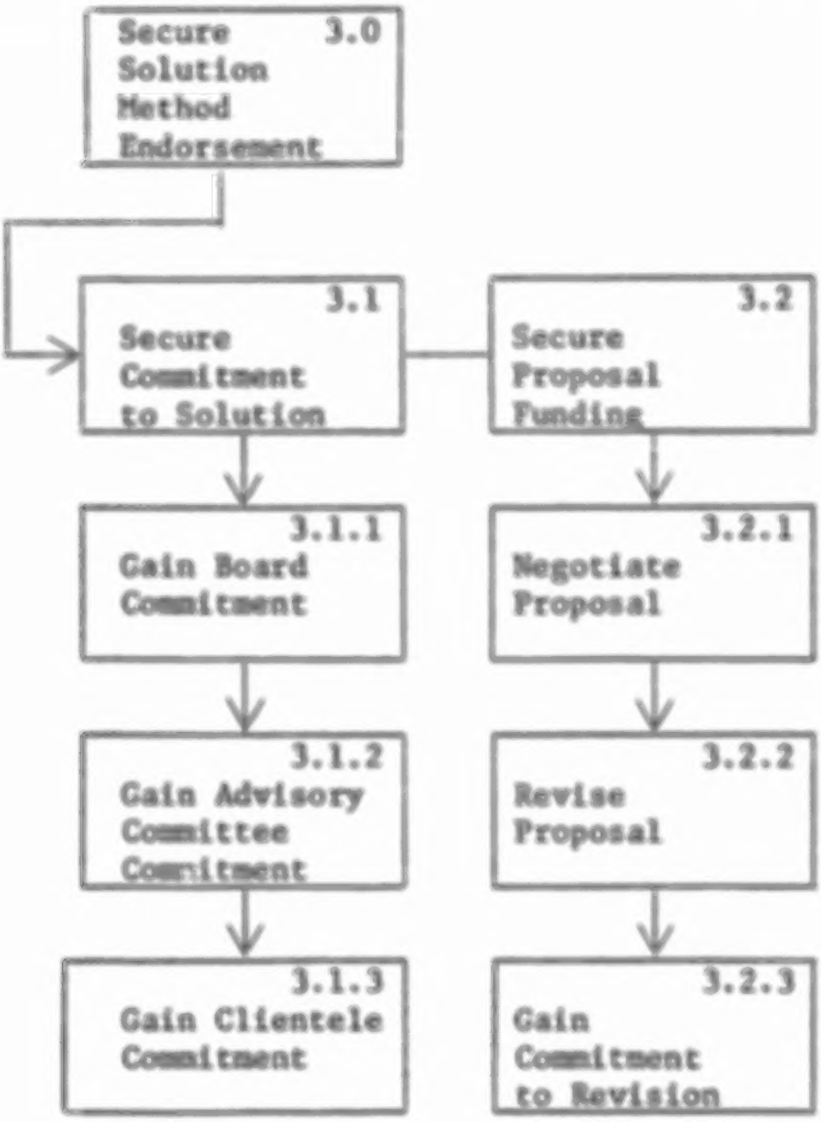
1. The Center mission will have financial support for only that period between July 1, 1967, and June 30, 1968.
2. Services provided by the Center are functionally restricted by specific budget allocations.
3. Successful performance will be determined by:
    3.1 Acceptance of Center Services and products by service area clientele.
    3.2 Acceptance of proposals supported by the Center.
    3.3 Requests from clientele for planning assistance.
    3.4 Implementation of Center-recommended programs by the clientele.
    3.5 Approval of the re-submission proposal.

Constraints

1. Services cannot be provided beyond the capabilities of the staff and capacities of the Center.
2. Center material production will be restricted by budgetary allocation, staff limitations and reproduction capabilities.
3. Ability to provide staff services will be restricted by the distances to be traveled in reaching clients.

Acceptance of Solutions

The third step of the reorganization plan is to secure solution method endorsement which we saw as breaking out in this way:


Secure Solution Method Endorsement 3.0
3.1 Secure Commitment to Solution
3.2 Secure Proposal Funding
3.1.1 Gain Board Commitment
3.2.1 Negotiate Proposal
3.1.2 Gain Advisory Committee Commitment
3.2.2 Revise Proposal
3.1.3 Gain Clientele Commitment
3.2.3 Gain Commitment to Revision

The Executive Board was provided with an analysis of the situation which includes many factors. First of all, valid alternatives, each with supporting arguments, were proposed in regard to office organization: whether to continue operation in four offices, reduce to two, or fuse into one. These alternatives were presented as follows:

1. If the decision is to maintain the Center operation as it is (four offices):

   Advantage

   - Maximum availability of staff to clients.

Disadvantages

- Lack of capability to develop a "team" approach to problem solution.
- Lack of leadership control.
- Minimum capability of concentrating Center resources to provide services to clients.

2. If the decision is to establish offices in dual centralized sites (two offices):

Advantages

- Near maximum availability of staff to clients.
- Near maximum capability to develop a "team" approach.
- Near maximum capability to concentrate Center resources to provide services to clients.

Disadvantages

- Maintains limitation to leadership control.
- Two offices are less efficient to maintain than one.

3. If the decision is to establish one office:

Advantages

- Maximum leadership control.
- Maximum capability to develop "team" approach.
- Maximum capability to concentrate Center resources in providing responsive service to clients.

Disadvantages

- Reduced availability of staff to clients due to travel requirements.
- Difficulty of clients to relate to "their" Center.

The Executive Board decided to operate from a single office. The next decision concerns the location of that office. The following analysis was provided to assist in reaching decisions regarding the location of the Center office.

The site decision for the location of Center facilities should be reached only after consideration of the following criteria and recommendations from the Center staff to the Executive Board.

1.0 That the decision for facilities location be based upon established criterion for selection.

  1.1 Site selection should maximize the ability of each staff member to share ideas, cooperatively seek solutions to common problems, and to work as a member of a team in planning and operational phases of the Center operation.

  1.2 Site selection should consider minimizing the distances between Center operations while maintaining maximum availability to each school district in the service area.

2.0 That the requirements and operational program of the Center be considered in the final site decision. Essentially, the Center exists to provide services to its clients. In order to provide those services:

  2.1 Staff members must be available to the clients of the Center.

  2.2 Center resources must have a capability of focusing on problems.

  2.3 Trade-offs or compromises must be made.

    2.3.1 Minimum travel cost and time loss must be maintained while providing the service.

2.3.2 Staff members must be readily available to clients, to other staff members and to the Center itself.

2.3.3 The needs of Center clients and of ESEA do not always coincide but both must be met.

FACTORS TO BE CONSIDERED IN SITE DECISION

1. Centrality
    - Total population
    - School population
    - Size of area served
    - Number of school districts
2. Support Facilities
    - Capability for Reproduction of Materials
        - County Office
        - Commercial
    - Manpower Capacity and Availability
        - Trained secretaries
        - Trained technicians
        - Others
    - Facilities Availability
        - Office space
        - Commercial
3. Attraction of Location for Staff Members

ANALYSIS OF SIZE AND POPULATION OF SERVICE AREA

Geographic Size (square miles)

Kings County	1,395	
Madera County	2,144	
Mariposa County	1,455	
Merced County	1,985	
Tulare County	4,838	
Total	11,817	
Madera, Mariposa, Merced Counties		5,584 square miles
Kings, Tulare Counties		6,233 Square Miles

General Population

Kings County	68,600	
Madera County	42,800	
Mariposa County	5,000	
Merced County	100,000	
Tulare County	182,700	
Total	399,700	
Madera, Mariposa, Merced Counties		148,400
Kings, Tulare Counties		251,300

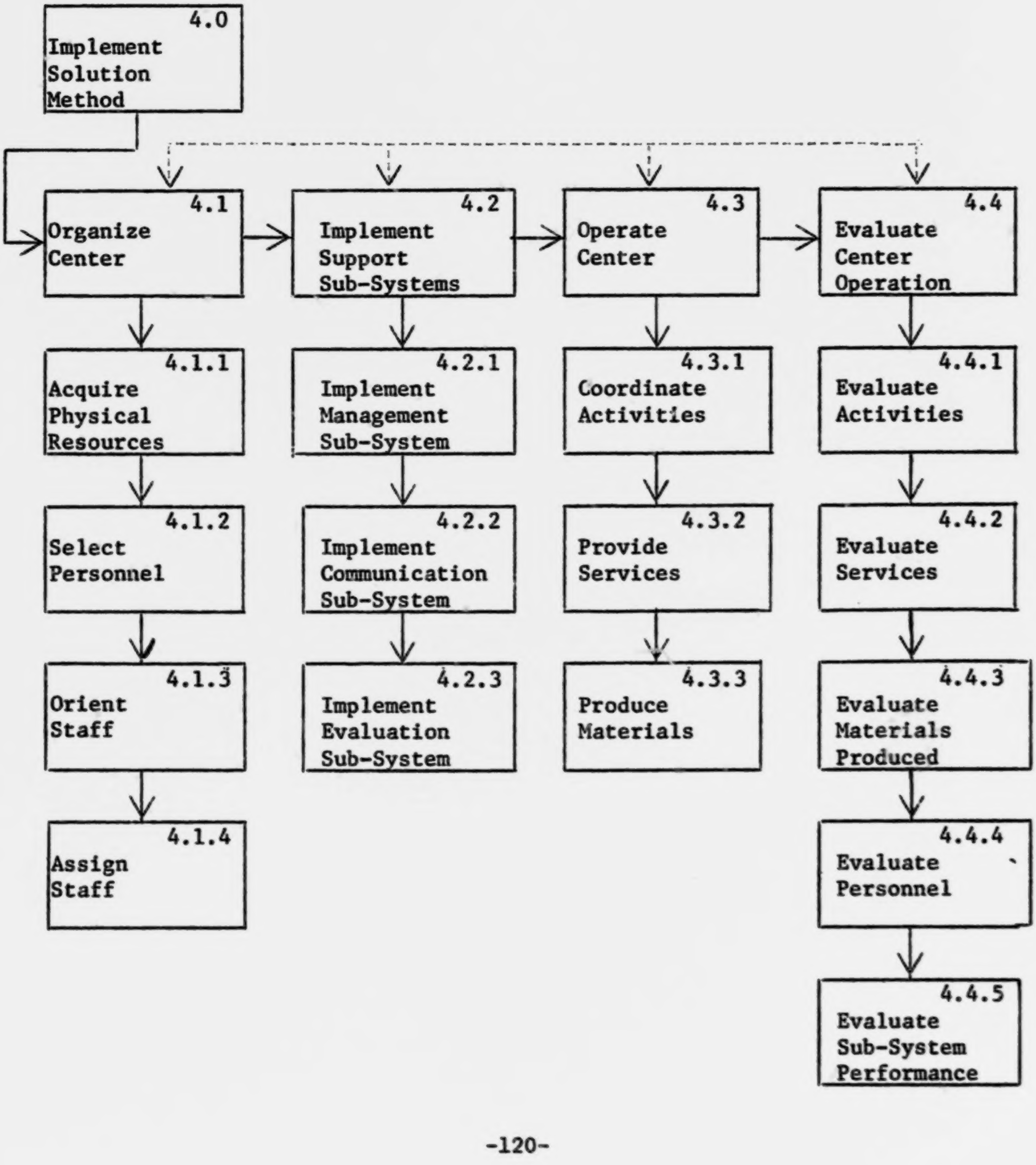
School Population

Kings County	16,184	
Madera County	11,015	
Mariposa County	1,106	
Merced County	29,400	
Tulare County	46,275	
Total	103,970	
Madera, Mariposa, Merced Counties		41,521
Kings, Tulare Counties		62,459

Program Implementation

The fourth step in this reorganization plan, that of implementing the solution method (program) is still to be executed. This, of course, will comprise the next few months of operation, after re-submission negotiations have been completed, and the site is determined.

Implementation is detailed as follows:


4.0 Implement Solution Method
4.1 Organize Center
4.2 Implement Support Sub-Systems
4.3 Operate Center
4.4 Evaluate Center Operation
4.1.1 Acquire Physical Resources
4.1.2 Select Personnel
4.1.3 Orient Staff
4.1.4 Assign Staff
4.2.1 Implement Management Sub-System
4.2.2 Implement Communication Sub-System
4.2.3 Implement Evaluation Sub-System
4.3.1 Coordinate Activities
4.3.2 Provide Services
4.3.3 Produce Materials
4.4.1 Evaluate Activities
4.4.2 Evaluate Services
4.4.3 Evaluate Materials Produced
4.4.4 Evaluate Personnel
4.4.5 Evaluate Sub-System Performance

The base provided by the analysis process has settled the Center and its program onto a very firm foundation, more firm than would have been possible without the application of the analysis process and techniques. The proposed program for the Center's 1967-1968 operation will allow for meeting the stated needs and for performing the functions as they are outlined in the Mission Statement for the Center.

Following is an outline of the Center's proposed operational program:

1.0 Disseminate information to the clients of the Center concerning Title III ESEA and promising innovative, adaptive and exemplary Programs.

  1.1 Establish a research capability which will provide for reporting of research findings in usable language, response to research requests, support project proposals and develop a library of informational files available to and usable by the clients of the Center.

  1.2 Conduct a series of conferences, symposiums or workshops for teachers, administrators, lay public and students to introduce into the service area the latest educational trends and findings in the educational community.

    1.2.1 Four conferences for 75 top students (selected on a weighted county basis) to which experts would be brought to inform and stimulate students in such general areas as business, scientific technology, the performing arts, and social services. The objectives would be to give recognition to the high achievement level of these students as well as to provide them with information and the experience of associating with recognized leaders in specified fields.

1.2.2 Three conferences for administrators (each repeated for the north and south sections of the service area) in the areas of Planning, Evaluation, and Innovations, or other topics selected by consultation with the local administrators' associations. The objectives of these conferences would be to suggest various approaches to the definition and solution of administrative problems.

1.2.3 Four conferences for teachers (each repeated for the north and the south sections of the service area) in the fields of Innovation, Curricular Trends, Planning, and Evaluation (from the teacher's view-point) or other topics selected by consultation with teacher groups, consultant groups and/or county office curriculum or guidance personnel. The objectives will be to demonstrate new techniques and curricular presentations for direct classroom application. Conferences will be designed and developed to supplement existing activities of county offices or other groups.

1.2.4 Ten local school district evaluation meetings in which faculties, boards, and the lay public will be brought together for a close look at their schools, ways to improve them, and ways of establishing closer communication between schools and homes, 2.0 Continue assessment of need, with the future focus determined after consultation with curriculum personnel and administrators in the service area.

3.0 Assist in the setting of priorities on the educational needs which are identified formally and informally and continue to focus attention on those needs which have received high priorities. The Center will, at the same time, maintain a capability for adapting its focus to changing conditions, revised priorities, and further findings through constant assessment of educational needs.

4.0 Encourage and assist development of action programs for the solution of high priority problems. It is the expectation that ten project proposals will be developed with the service area as a result of accompanying support by the Center which can offer planning assistance, provide outside consultants as needed, and assist in research.

In order to assist in planning and utilization of concepts of change, instruction in System Analysis will be conducted by Center staff members and repeated in each of the counties, for both county office personnel and district personnel. The instructional program will consist of 20 structured two-hour sessions replicating the training received in the PEP institute.

5.0 Assist in the implementation of the program developed, whether the results of planning is a Title III or other grant, or simply the progression from current to more innovative approaches to problem solution.

PLANNING INTERNATIONAL EDUCATIONAL RESEARCH THROUGH SYSTEM TECHNOLOGY

Jerry B. Bolibaugh

Tri-County Supplementary Educational Service Center

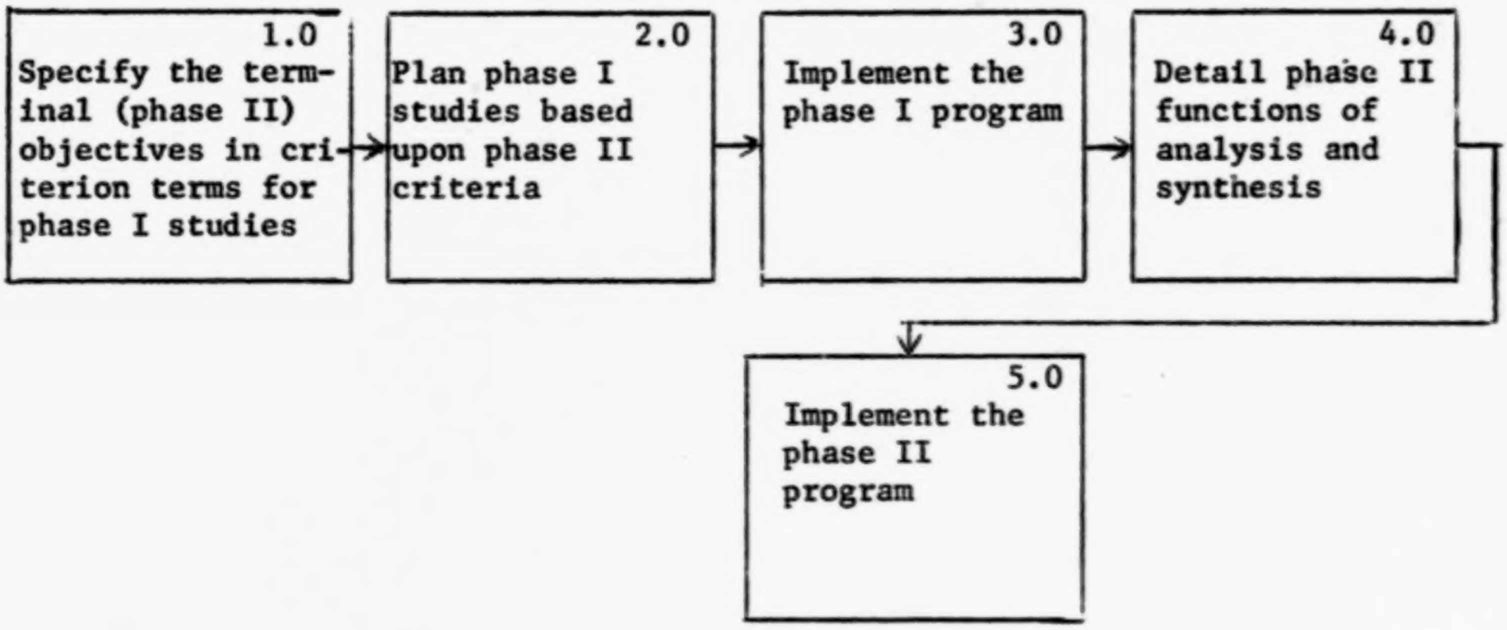
The extensive growth of international research in education during the past decade has been paralleled recently by increasing endeavors to apply system technology to educational problems in the United States, particularly in California. The latter efforts have progressed to the point where the techniques of system analysis and synthesis may be applied effectively to the complex problems posed by international research in education.

In fact, the entire field of national-level educational planning, which includes an important research component, would benefit in terms of precision and objectivity if the system approach were employed universally by the practitioners of this activity. Pioneer educational planners throughout the world, who render decisions which influence the direction of educational development on all continents, come from various professional fields and are trained in different ways. They need a common methodological approach and a common communication tool. System technology provides a means to achieve this commonality. In short, it is suggested that the international and national institutions engaged in training educational planners include courses in system technology. Specifically, institutions such as the International Institute of Educational Planning in Paris, the regional UNESCO training centers such as those at Dakar, Senegal, and New Delhi, India, and universities such as Stanford University in California should investigate the potentiality of the system approach and incorporate it in their pre-service and in-service training programs for educational planners.

At a talk presented recently before the faculty and members of the Stanford International Development Education Center, (SIDEC), Stanford University, an invitation for such an investigation was extended by the author of this paper. The talk focused on the application of system technology to the planning and implementation of a new overseas research program soon to be implemented by the Center. Funded by the United States Office of Education, this research program calls for the development of theoretical models and practical guidelines concerning the content and methods of education that would seem to be most suitable in specific national situations, taking account of such variables as the stage of modernization and the historical roots of a community. The ultimate aim would appear to be the provision of better evidence than is now available as to what educational programs would be most effective in meeting the needs of the individual and of society in developing countries within specified socio-economic contexts. In view of the growing sociological and financial problems resulting from the expansion of foreign educational systems in these emerging nations, the need for research programs of this nature is evident.

This laudable but ambitious objective is to be achieved through deriving generalizations from an analysis of fifteen to twenty-five overseas studies of education done by doctoral students as part of their pre-service training as educational planners. Thus, the series of individual studies constitute the first phase of the research program with the analysis representing a second phase. Applying the system approach, the first phase comprises a series of interim objectives necessary to the achievement of the final or terminal objective. Conversely, the careful specification of the terminal or second phase objective is a necessary prerequisite to the definition of the interim objectives. The entire program consists of a single interdependent system.

In other words, unless the terminal objective of the entire program is subjected to a rigorous, systematic analysis in order to specify the criteria for the first phase studies, it is questionable whether the fifteen to twenry-five field studies will have the commonality of design and purpose to allow the derivation of valid generalizations to develop theoretical models and practical guidelines concerning suitable content and methods of education. A gross, simplistic functional flow of the program might appear as follows:


1.0
Specify the terminal (phase II) objectives in criterion terms for phase I studies
2.0
Plan phase I studies based upon phase II criteria
3.0
Implement the phase I program
4.0
Detail phase II functions of analysis and synthesis
5.0
Implement the phase II program

Because of the almost unlimited number of studies possible under the research program, the use of system analysis to establish a priority listing of the most fruitful studies, in terms of the mission or terminal objectives and the concomitant limits and constraints on the program, would be particularly useful. The variables, which should be considered individually and in combination with others in deciding the locale of the fifteen to twenty-five field studies, are staggering in number. For example, Harbison and Myers divide the countries of the world into four levels of socioeconomic development including the underdeveloped, the partially developed, the semi-advanced, and the advanced.[1] Should the studies be focused on countries of the first two levels of development? Within these two levels exist nations on at least three continents with varying historical/cultural environments including imported and indigenous systems of education. Within a given country, the types and levels of education are numerous. Should a group of the field studies concentrate on vocational education? If so, would it be most appropriate to focus on intermediate level vocational education, which has been highly criticized by many experts? Regardless of the type or level of education to be studied, should the institutional objectives, program, and product be studied for internal consistency and external relationship to national development objectives which, in turn, may not match the real world requirements? Within a given field study, what research design and concomitant measurement techniques promise both maximum external validity in terms of the terminal objective of generalization and maximum feasibility in terms of time, cultural context, and the approval of local authority?

These and other problems need to be collected, analyzed, and resolved systematically in order to render the research program effective in meeting its objective. As an illustration of one aspect of the application of system technology to the problem, a partial analysis of phase I functions or activities has been drafted in a system format or chart.[2] Those familiar with the system approach will recognize technical deficiencies in the draft and the functional flow may be questioned both in terms of sequence of the functions and an inclusion of phase II functions in the phase I sub-system. A trade-off or compromise has been made to illustrate a variety of problems within the limitations of this paper.

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[1] Harbison, Frederick and Myers, Charles, A. Education, Manpower, and Economic Growth. New York: McGraw-Hill Book Company, 1964. pp. 45-48.

[2] This would represent an expansion of function 2.0 on page 2.

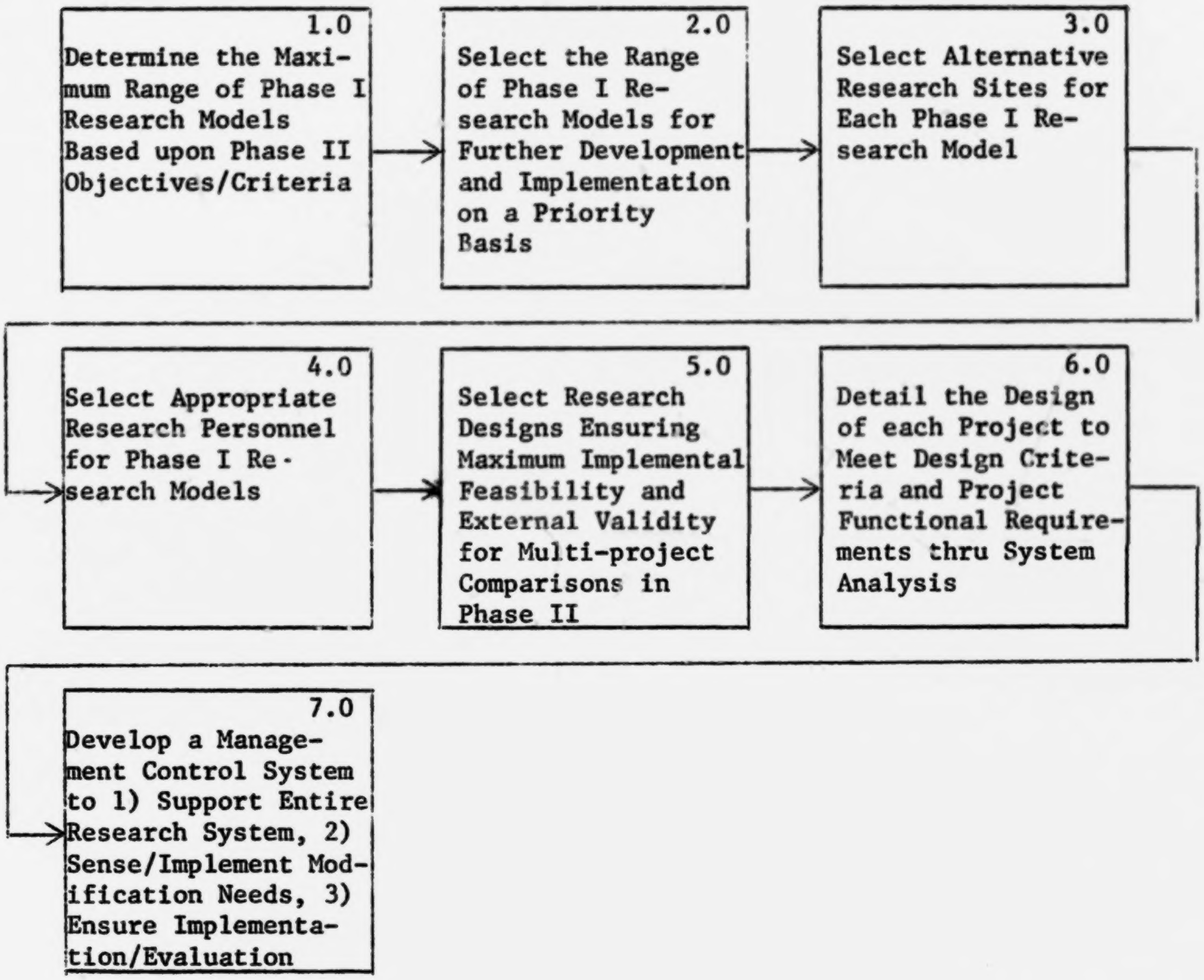
The first step in the system technique consists of defining the overall objective, referred to as the mission objective, and of listing the concomitant limits and constraints. Unfortunately, this most important step loses its significance in this artificial situation where the real objective of the author relates to providing a limited illustration rather than to actually developing an authentic plan. Further, since a complete system analysis and synthesis cannot be performed or even illustrated within the limitations of this presentation, the interaction, or iteration, between the objective, the limits and constraints, and the remaining elements of the system cannot take place. This interaction tends to improve the statement of the objective and to increase the specificity and reality of the limitations and constraints. The objective is stated as follows:

Objective: Plan a phase I research system, based upon criteria derived from the terminal objectives of phase II, which includes functions related to the determination of the types of field studies (projects) to be conducted, the selection of research sites, research personnel, and research design, and the development of a management control system.

(Complete mission profile and partial functional analysis only to illustrate the application of the first stages of system analysis to the problem)

Limits:	Time:	1. Three months to complete the phase I plan. 2. Three years to implement the phase I plan.
	Money:	$__________per field study (project).
	Performance:	Provide the data required for phase II analysis through fifteen to twenty-five overseas field studies which also meet dissertation requirements.
Constraints:	Personnel:	15-25 doctoral students who have passed qualifying examinations to conduct studies, four supervisors, faculty members of SIDEC, one project coordinator (doctoral student).
	Facilities:	Stanford University for pre- and post-field work Limited overseas facilities arranged for each field study

The second step comprises the stating of the major functions or activities required to meet the objective. Known as the mission profile, these major or toplevel functions should be ordered in sequence of performance. A study of the seven major functions (1.0 -~~7~~5.0) listed below will indicate that the research program should avoid the error of allowing the immediate availability and the personal desires of individual doctoral students to decide the nature of the program. This approach, as past experience has shown, leads to a group of unrelated studies which will not provide the generalizations required as the final outcome. This same principle applies to locating the field studies in countries to which faculty or students have ready access, rather than in those countries where studies are most to meet the terminal objective of the program. Inasmuch as Stanford has another objective, the production of educational planners with doctoral degrees, it cannot ignore totally the individual or his wishes, but it can develop a research system with enough alternatives which will meet the program criteria and minimize dissonance from the students.


1.0
Determine the Maximum Range of Phase I Research Models Based upon Phase II Objectives/Criteria
2.0
Select the Range of Phase I Research Models for Further Development and Implementation on a Priority Basis
3.0
Select Alternative Research Sites for Each Phase I Research Model
4.0
Select Appropriate Research Personnel for Phase I Research Models
5.0
Select Research Designs Ensuring Maximum Implemental Feasibility and External Validity for Multi-project Comparisons in Phase II
6.0
Detail the Design of each Project to Meet Design Criteria and Project Functional Requirements thru System Analysis
7.0
Develop a Management Control System to 1) Support Entire Research System, 2) Sense/Implement Modification Needs, 3) Ensure Implementation/Evaluation

The first function (1.0) above deals with the analysis of the locator, educational, and general design variables referred to previously. It should identify the multitude of studies which could be conducted and meet the terminal (phase II) objective. The second function (2.0) would apply the criteria of criticality, derived from the phase II or terminal objective, to the multitude of studies and thereby establish a priority ranked list of types of field studies for implementation. Thus, in computer fashion, all possible types of research studies relevant to the final objective have been identified and the most relevant selected for implementation on a priority basis.

The third function consists of matching specific first and second choice research sites with each high priority type of study. If, for example, comparative studies of traditional and experimental intermediate vocational school systems are to be conducted in French and English speaking level one and two (underdeveloped and partially developed) countries, specific nations meeting the criteria must be identified. Thus, sub-function 3.1.1. in the systems chart refers to the development of a research site data collection, storage, and retrieval system which would be a data bank of pertinent information on countries around the world. The center at Stanford University has innumerable information sources which could feed the data system. For example, the author, a graduate of the Center, could provide detailed information on four countries of West Africa and on one in North Africa. Stanford, and many other institutions of higher education engaged in overseas research, have a large pool of resource personnel to tap if a system to do so is established.

Given a type of study and a choice site in which to conduct the study, the researcher must be fitted with the task. The fourth function (4.0) suggests that doctoral students be matched to tasks. If none of the existing students have the required qualifications, students that do should be recruited. For example, in order to meet the terminal objective of the program most effectively, it may be necessary to conduct at least five studies in French-speaking countries, five in Spanish-speaking ones as well as five where the English language dominates. If present students cannot gain a fluency in French and Spanish through accelerated training, students with the linguistic qualifications may be found. Stanford, with its network of contacts in French and Spanish-speaking nations, should have relatively little trouble in this respect.

The fifth function would involve the selection of research designs which would ensure maximum implemental feasibility and external validity for the generalizations to be derived in phase II. Designs must be feasible in terms of the limitations of time, cultural transferability, and the anticipated reactions of the host government authorities to alternative mass involvement and in-depth measurement activities. Further, research design strategies would be agreed upon so that similar studies or projects conducted in different countries possess sufficient commonality of focus and design to allow for phase II comparisons and multi-project or study generalizations.

In a seminar of applied research methodology, a task force of faculty and students would address themselves to the above problem. Since the system technique constitutes a common communication tool employing a structured deductive-inductive pattern, it renders group planning more effective through a formalization of thinking with a focus upon the problem. The process stimulates group creativity because the specified idea of one participant sparks related refinements and alternatives from others which, in turn, opens avenues as to how to resolve the next problem in order to meet the terminal objective.

The sixth function requires each researcher (doctoral student) to subject his field study or project to system analysis and synthesis including the scheduling of the system through time. The researcher, knowing the educational focus of his study, the locale, and the general design structure, proceeds to analyze each aspect of the project so that every anticipated problem and task has been accounted for and the requirements of each accommodated (functional, task, and method/media analysis). For example, within the limits and constraints of his project objective derived from the research site data system, the researcher may have information on conditions in the host country (research site) which may tend to restrict the extent of his measurement activities. Thus, he should build in an alternative behavior measurement plan since, for example, it may be anticipated that the most valid plan, requiring more time and local collaboration, can only be implemented under completely favorable conditions.

By analyzing and time scheduling (PERT or critical path) his project or field study through the system method, the researcher will have sharpened not only his total research plan and, thereby, his own preception of it, but he will have developed an objective, precise, and readable statement which his colleagues will be able to critique in detail without having to read pages of narrative within which one tends to become lost. For the same reason, his research procedures and techniques may be compared readily with pre-established general design requirements and with other projects forming a common cluster from which generalizations must be derived. Finally, a built-in management control system will have been established; with every step detailed and scheduled through time, delays and obstacles during implementation are sensed quickly and, thereby, are easier to control.

After completion of the analytical process, the synthesis stage is completed. Actually, there is considerable overlap in these two procedures, but, in general, analysis constitutes an activity which probes and dissects possible elements of a plan and leads to a combining of the best elements into a sequential or functional order; synthesis consists of preparing the agreed-upon plan for the operational or implemental phase.

The seventh and final function consists of developing a management control system to ensure the planning and implementation of the phase I objective involving fifteen to twenty-five relative overseas research projects over a three year period. Because of limitations of time, the worldwide nature of the research program, and the inherent difficulties of conducting research in emerging countries, the program is particularly susceptible to Murphy's Law: "If anything can go wrong, it will." Therefore, a program development and implementation monitorial system (7.1) should be established. Through systematizing the entire program, including each individual field study or project in phase I, a master control system will be virtually built-in. Every aspect or sub-system will be detailed and time scheduled to the extent that obstacles may be immediately sensed and overcome, or adjusted to, through previously agreed upon alternative strategies. If every contingency has not been foreseen, the system monitorial control will permit a quicker recognition of an unanticipated problem and the development of a solution that would be otherwise possible.

The maintenance and expansion of a research site data system and a recruitment system will not only improve the probability of the success of the described research program, but it will facilitate the success of similar programs which Stanford University and other institutions will continue in the future.

In suggesting the utilization of system technology in planning overseas research and in worldwide educational planning activities, it is necessary to point out two things. First, the capable and internationally renowned faculty of the Stanford International Development Education Center, are doing expertly many of the activities discussed in this paper. My suggestion is that their expertize, and that of their students, could be enhanced through the system approach.

Secondly, educational planning throughout the world remains in the formative or primitive stage. The application of system technology both in planning the training of educational planners and in the development of national education plans, in my opinion, would represent a significant advance in the profession and, hence, in meeting the educational problems plaguing nations throughout the world.

OBJECTIVE: Plan a phase I research system, based upon criteria derived from the terminal objectives of phase II, which includes functions related to the determination of the types of field studies (projects) to be conducted, the selection of research sites, research personnel, and research design, and the development of a management control system. (Complete mission profile and partial functional analysis only to illustrate the application of the first stages of system analysis to the problem).

LIMITS: Time: 1. Three months to complete the phase I plan

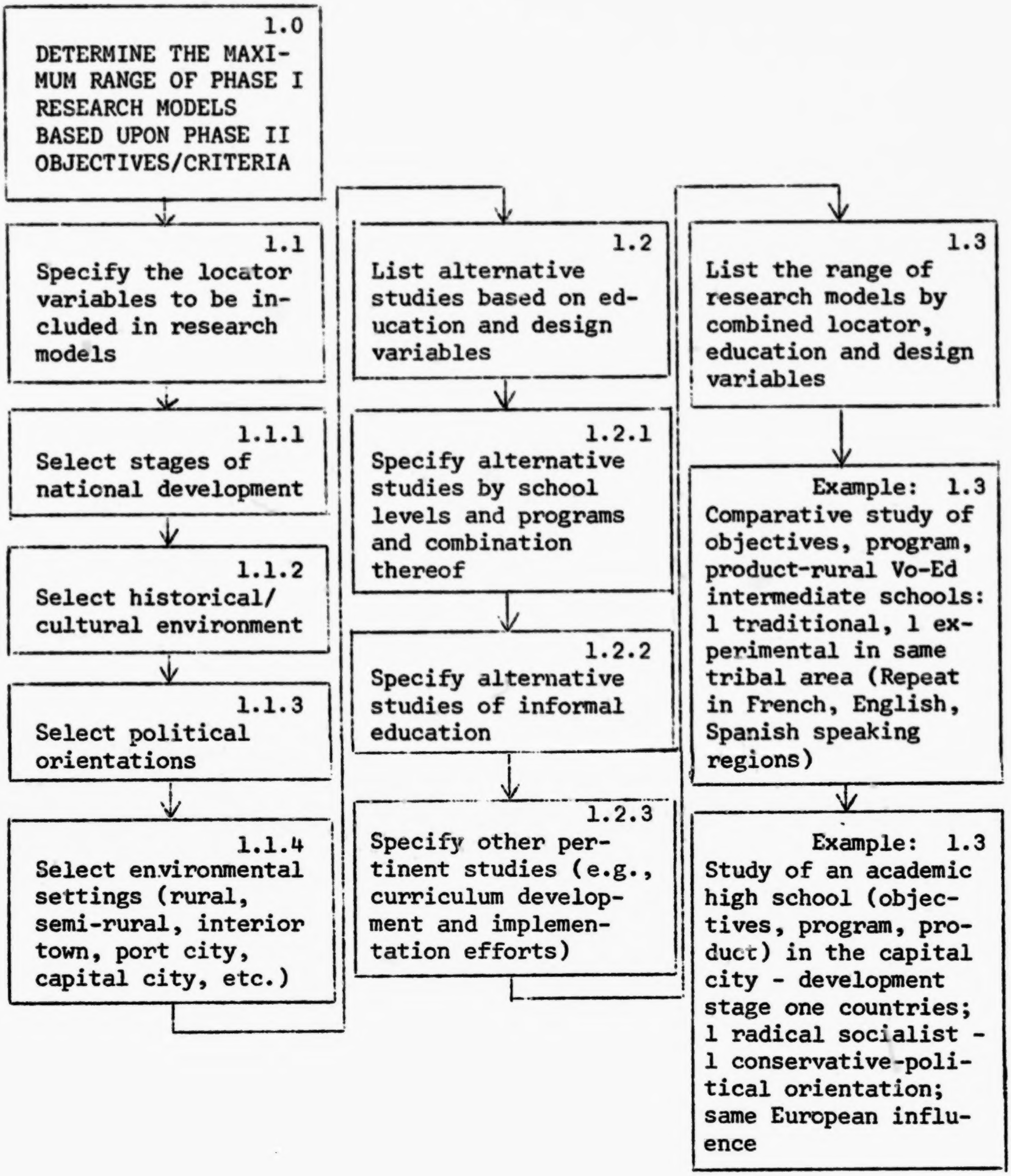
2. Three years to implement the phase I plan

Money: $________per field study (project)

Performance: Provide the data required for phase II analysis through fifteen to twenty-five overseas field studies which also meet dissertation requirements.

CONSTRAINTS: Personnel: 15-25 doctoral students who have passed qualifying examinations to conduct studies. Four supervisors, faculty members of SIDEC. One project coordinator (doctoral student).

Facilities: Stanford University, pre- and post-field work. Limited overseas facilities arranged for each field study.



1.0
DETERMINE THE MAXIMUM RANGE OF PHASE I RESEARCH MODELS BASED UPON PHASE II OBJECTIVES/CRITERIA

1.1
Specify the locator variables to be included in research models

1.1.1
Select stages of national development

1.1.2
Select historical/cultural environment

1.1.3
Select political orientations

1.1.4
Select environmental settings (rural, semi-rural, interior town, port city, capital city, etc.)

1.2
List alternative studies based on education and design variables

1.2.1
Specify alternative studies by school levels and programs and combination thereof

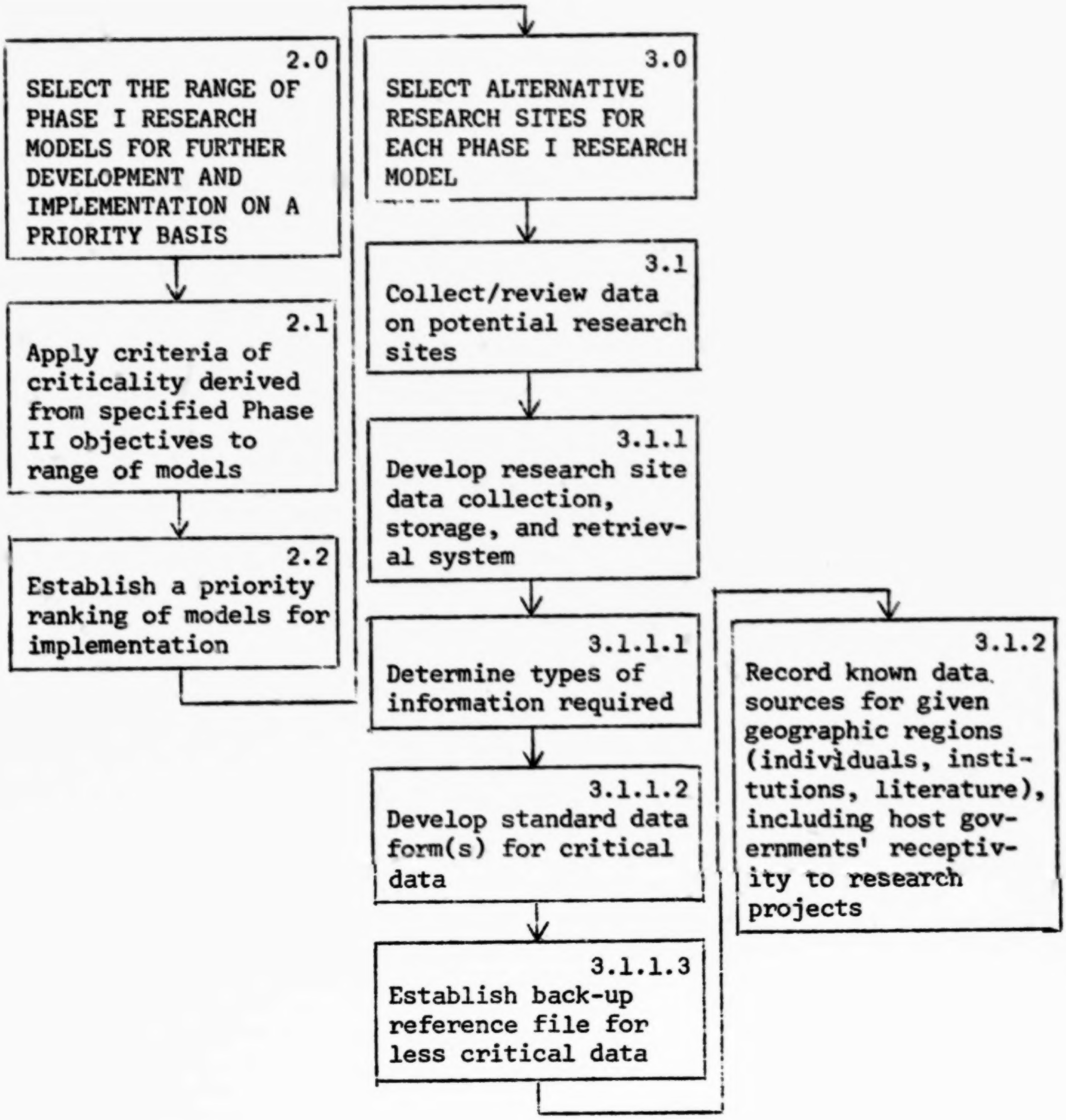
1.2.2
Specify alternative studies of informal education

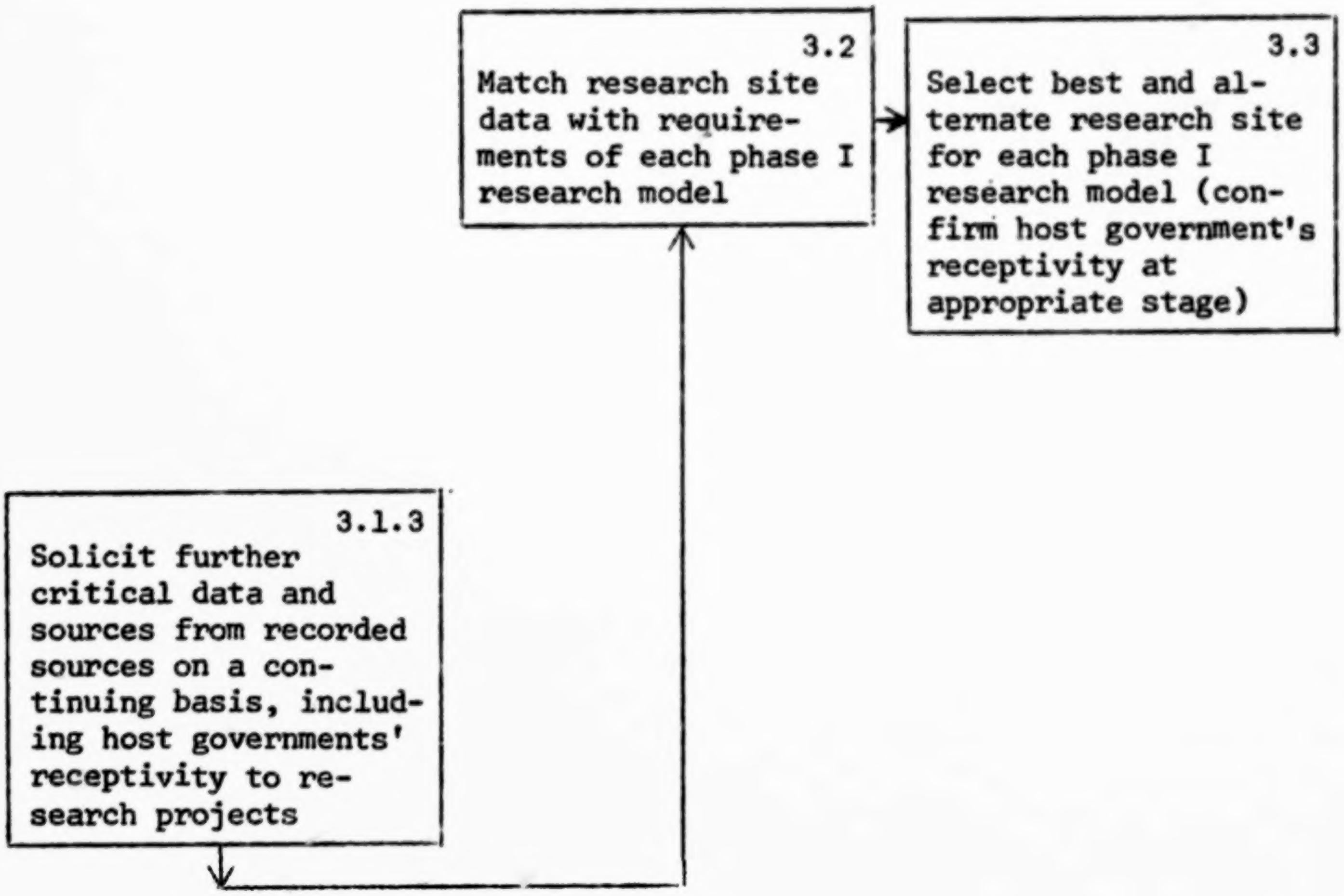
1.2.3
Specify other pertinent studies (e.g., curriculum development and implementation efforts)

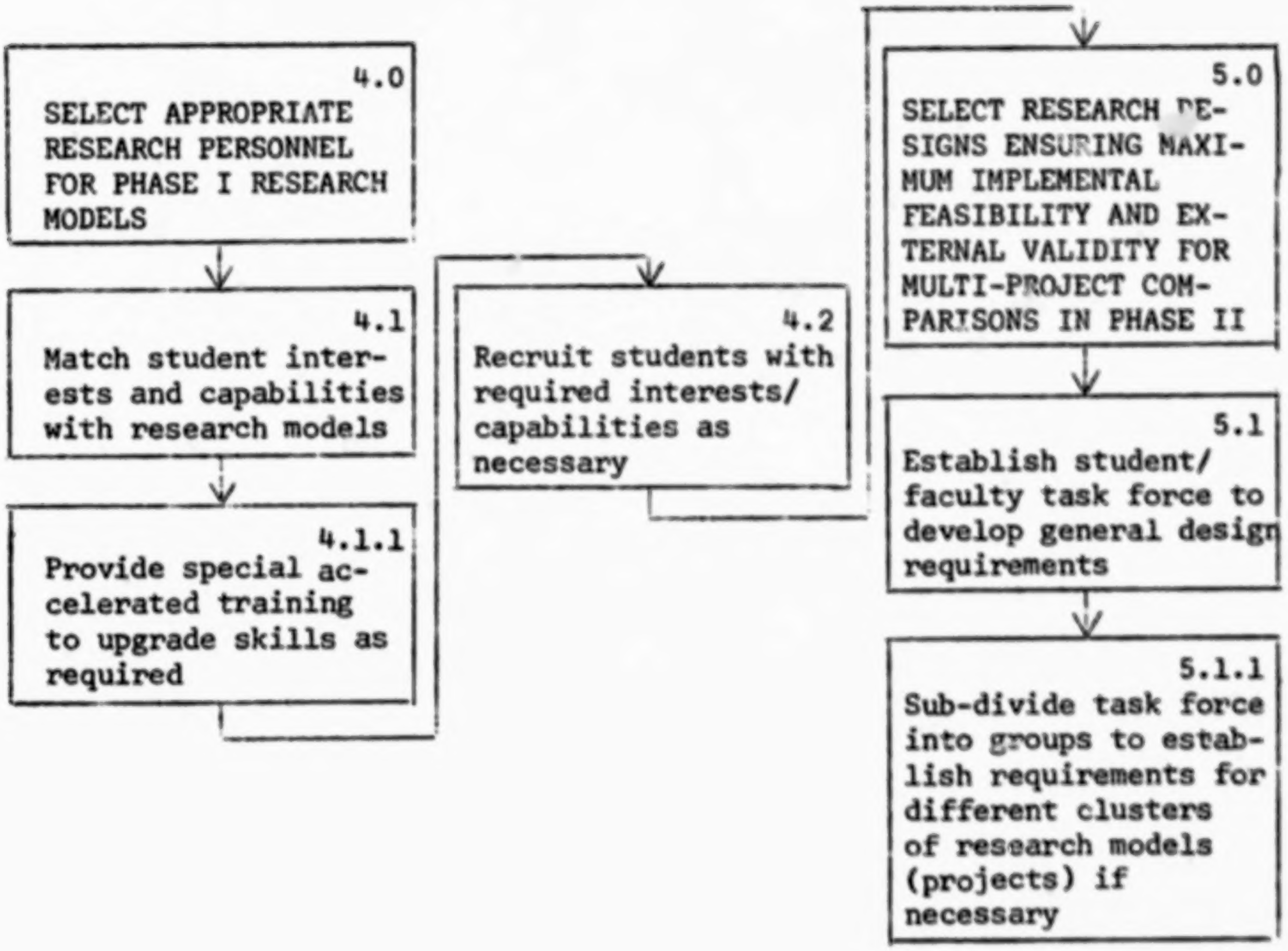
1.3
List the range of research models by combined locator, education and design variables

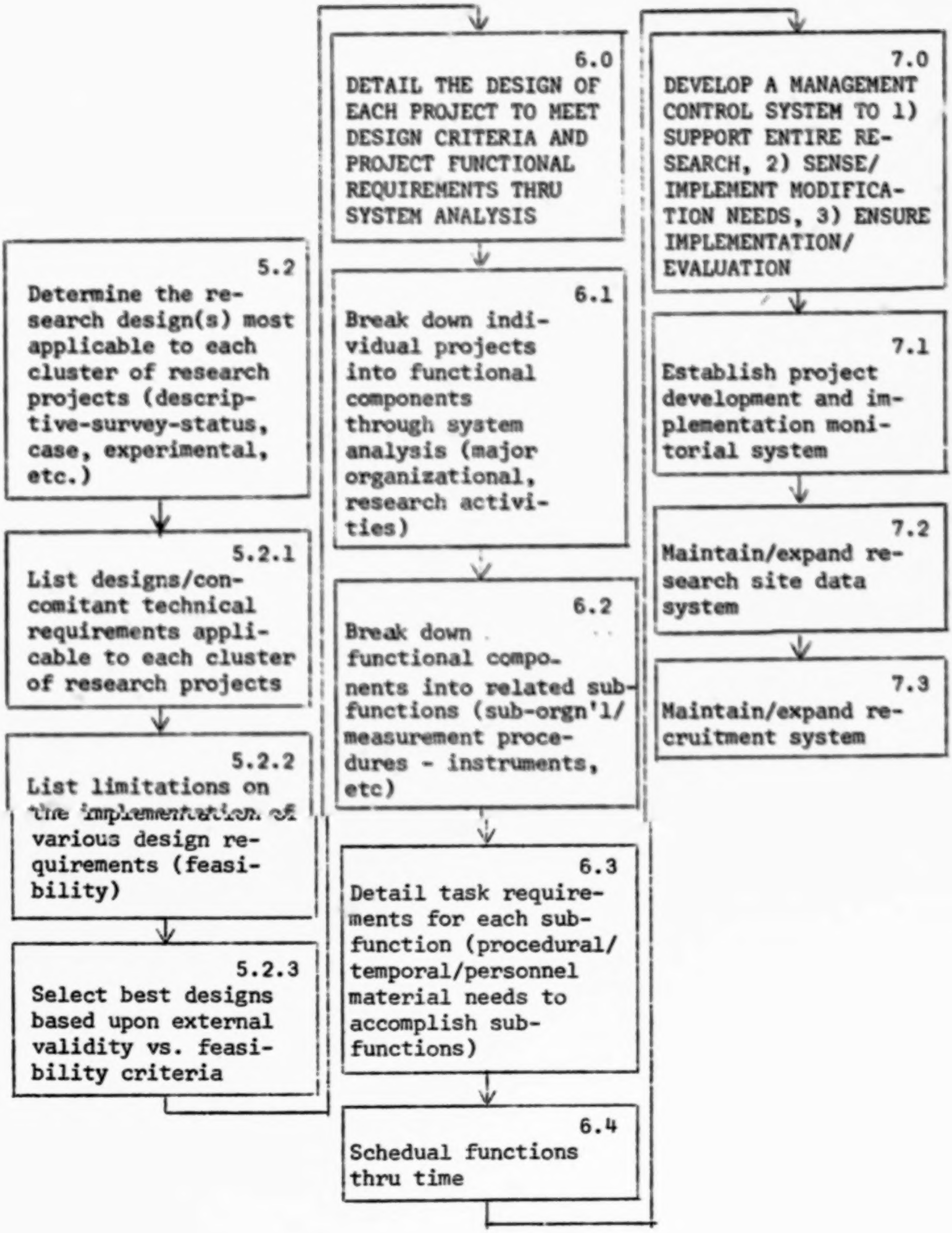
Example: 1.3
Comparative study of objectives, program, product-rural Vo-Ed intermediate schools: 1 traditional, 1 experimental in same tribal area (Repeat in French, English, Spanish speaking regions)

Example: 1.3
Study of an academic high school (objectives, program, product) in the capital city - development stage one countries; 1 radical socialist - 1 conservative-political orientation; same European influence


2.0 SELECT THE RANGE OF PHASE I RESEARCH MODELS FOR FURTHER DEVELOPMENT AND IMPLEMENTATION ON A PRIORITY BASIS
2.1 Apply criteria of criticality derived from specified Phase II objectives to range of models
2.2 Establish a priority ranking of models for implementation
3.0 SELECT ALTERNATIVE RESEARCH SITES FOR EACH PHASE I RESEARCH MODEL
3.1 Collect/review data on potential research sites
3.1.1 Develop research site data collection, storage, and retrieval system
3.1.1.1 Determine types of information required
3.1.1.2 Develop standard data form(s) for critical data
3.1.1.3 Establish back-up reference file for less critical data
3.1.2 Record known data sources for given geographic regions (individuals, institutions, literature), including host governments' receptivity to research projects


3.2
Match research site data with requirements of each phase I research model
3.3
Select best and alternate research site for each phase I research model (confirm host government's receptivity at appropriate stage)
3.1.3
Solicit further critical data and sources from recorded sources on a continuing basis, including host governments' receptivity to research projects


4.0 SELECT APPROPRIATE RESEARCH PERSONNEL FOR PHASE I RESEARCH MODELS
4.1 Match student interests and capabilities with research models
4.1.1 Provide special accelerated training to upgrade skills as required
4.2 Recruit students with required interests/ capabilities as necessary
5.0 SELECT RESEARCH DESIGNS ENSURING MAXIMUM IMPLEMENTAL FEASIBILITY AND EXTERNAL VALIDITY FOR MULTI-PROJECT COMPARISONS IN PHASE II
5.1 Establish student/ faculty task force to develop general design requirements
5.1.1 Sub-divide task force into groups to establish requirements for different clusters of research models (projects) if necessary


5.2 Determine the research design(s) most applicable to each cluster of research projects (descriptive-survey-status, case, experimental, etc.)
5.2.1 List designs/concomitant technical requirements applicable to each cluster of research projects
5.2.2 List limitations on the implementation of various design requirements (feasibility)
5.2.3 Select best designs based upon external validity vs. feasibility criteria
6.0 DETAIL THE DESIGN OF EACH PROJECT TO MEET DESIGN CRITERIA AND PROJECT FUNCTIONAL REQUIREMENTS THRU SYSTEM ANALYSIS
6.1 Break down individual projects into functional components through system analysis (major organizational, research activities)
6.2 Break down functional components into related subfunctions (sub-orgn'l/measurement procedures - instruments, etc)
6.3 Detail task requirements for each subfunction (procedural/temporal/personnel material needs to accomplish subfunctions)
6.4 Schedual functions thru time
7.0 DEVELOP A MANAGEMENT CONTROL SYSTEM TO 1) SUPPORT ENTIRE RESEARCH, 2) SENSE/IMPLEMENT MODIFICATION NEEDS, 3) ENSURE IMPLEMENTATION/EVALUATION
7.1 Establish project development and implementation monitorial system
7.2 Maintain/expand research site data system
7.3 Maintain/expand recruitment system

APPLICATION OF SYSTEM TECHNIQUES TO A TEACHER RECRUITMENT SERVICE

Raymond M. Langley
San Luis Obispo County Superintendent of Schools

THE QUESTION

How can a County Office of Education provide an efficient teacher recruitment service which will assist school districts in their efforts to match their needs against the best possible teacher candidates?

IMPORT OF QUESTION

This is not only a big question in terms of educational needs and values, but it is a big perennial question that blooms most profusely in the spring and early summer and can pop up at any time.

According to a CTA survey, the teacher turnover between June 30 and October 31, 1964, in the 754 districts responding to the survey was 11,654 or 10.8 per cent of the staff employed at the end of the 1963-1964 school year. Turnover percentages ranged from zero in 210 districts to a high of 93.8 per cent in one district.

San Luis Obispo County has served school districts for many years--not as a placement agency but as an available recruitment service. The function was to help school districts find suitable candidates, not to find positions for candidates. This service was used to a greater or lesser extent depending upon individual factors--size, demand, personnel and especially when the going "got tough."

ADVENT OF CHANGE

Growth, unification, the Fisher Bill, teacher shortages at the elementary level, higher salaries in other states, a new breed of teachers who give serious consideration to selecting a position--all brought about change in varying degrees.

REQUESTS FROM SCHOOL DISTRICTS

In spite of what would seem to be changes promoting greater individual district action, such as unification, requests began to come in on "Let's get together on this teacher recruitment business." It may be interesting to note that there is not a real shortage of applicants in our county. One of the prime concerns was increasing the layer of cream from which to select recruits.

PRELIMINARY STEPS

As preliminary steps, we began by reviewing our present system--forms, letters, cards, files, handling of paper. We also obtained information on a Needle Sort System for data retrieval. Other county offices were surveyed. We found that they, too, were interested in a Letter System.

FIRST MEETING

At this point, we called district representatives together around a conference table. From them we received definite expressions of interest, needs, suggestions, and experiences.

Here are a few samples of their comments:

From a Director of Personnel Services in the largest district: "At one of the college placement offices, I found that many of the applicants didn't even know where San Luis Obispo is--even though

Highway 101 runs right through it."

Another Director of Personnel and Special Services, who is also an Assistant Superintendent, said: "I can't afford the kind of time, away from the district, that teacher recruitment requires, especially considering the results we have had."

A superintendent of a small district commented: "Even if we had the time, we simply do not have the money for much of anything in this regard."

Several "middle-sized" district superintendents said: "If we could only pool our efforts....."

MISSION PROFILE EVOLVED

Specific types of services wanted by the districts ultimately gave rise to the Mission Profile:

1. Determine county recruitment needs.
2. Disseminate county needs and P. R. information nationally.
3. Assimilate applications.
4. Provide information exchange among districts, candidates, and the County Office.
5. Evaluate and revise the system.

LATER MEETINGS

Subsequent meetings with district representatives went further into teacher brochure possibilities, and led to a suggestion for a recruitment poster for placement office bulletin boards. These were sent to some 30 offices, mostly in California, and several out of state. All were coded for later identification of respondents.

A go-ahead was given to apply system techniques to come up with a countywide teacher recruitment service starting in the fall.

CARD SHUFFLING

Next, we identified further functions to be developed from the Mission Profile. This was a period of much 3" x 5" card shuffling in developing and arranging the data.

ASSIST FROM PEP

Further refinement came with the invaluable assistance of persons participating in the PEP program.

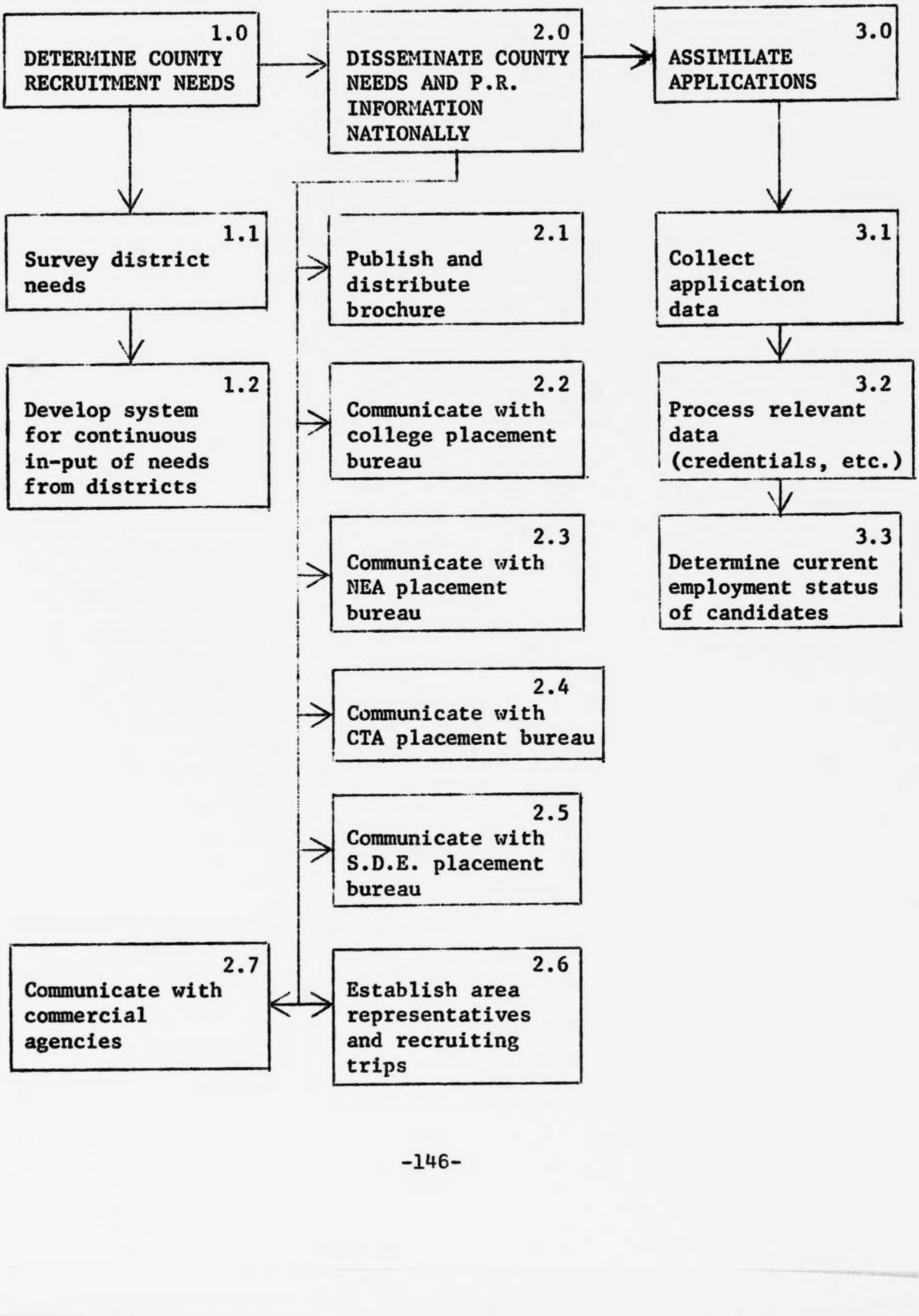
CONCLUSION

We hope to find out how a County Office can help districts tackle their teacher recruitment problem in order to attract a wider selection of better qualified teachers and, at the same time, develop a more efficient program of teacher recruitment.

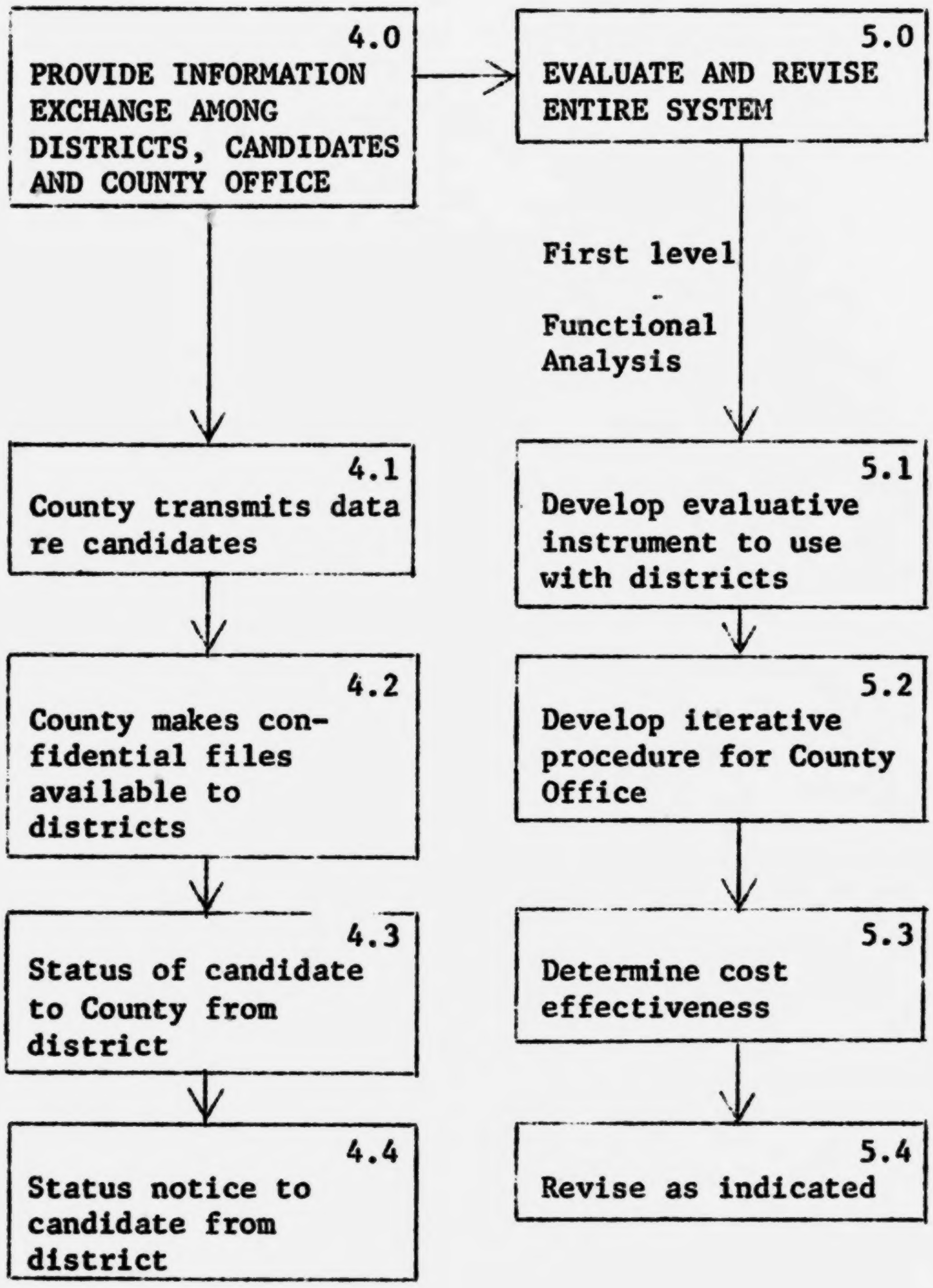
MISSION OBJECTIVE:

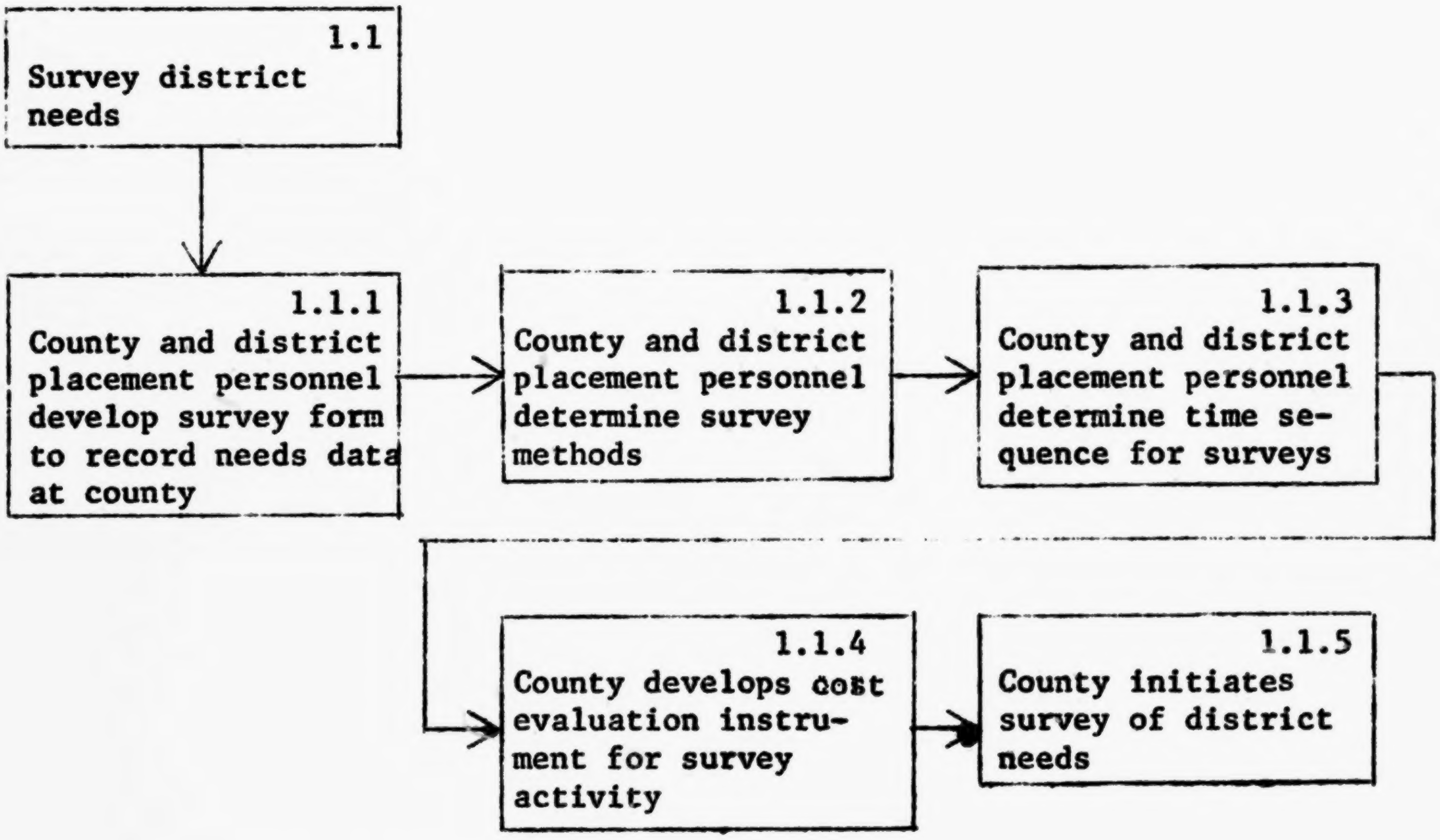
Enable the County Office of Education to provide an efficient teacher recruitment service which will assist districts in their efforts to match their needs against the best possible candidates.

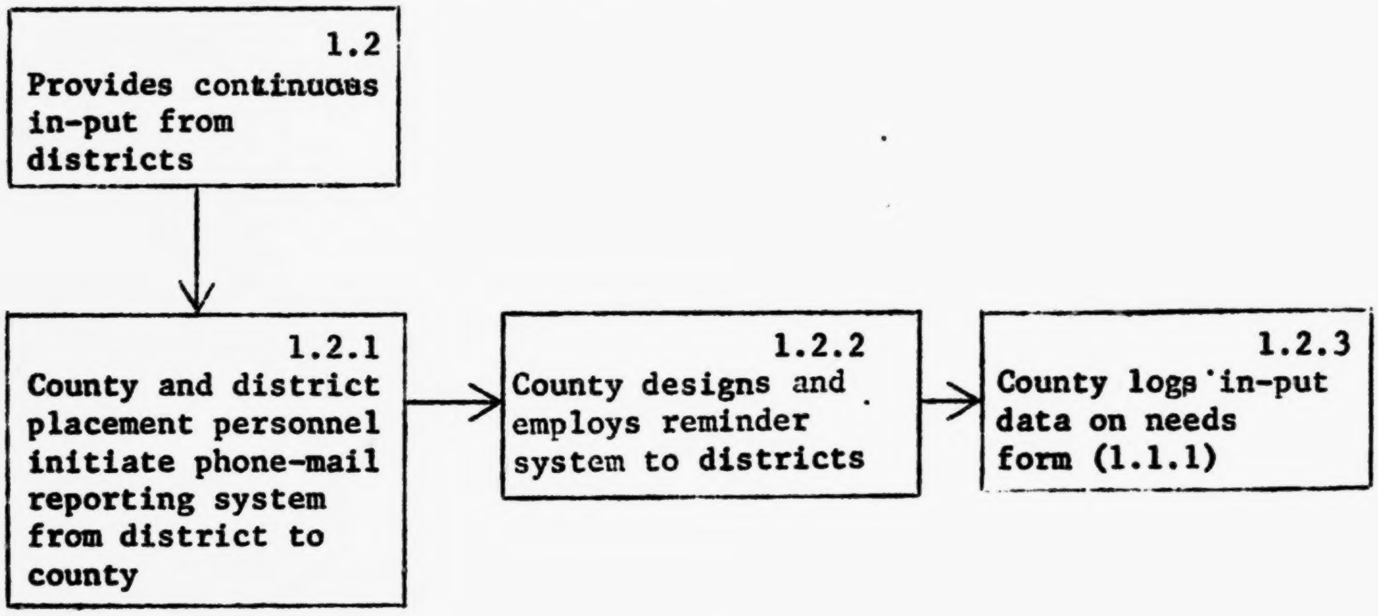
MISSION PROFILE:

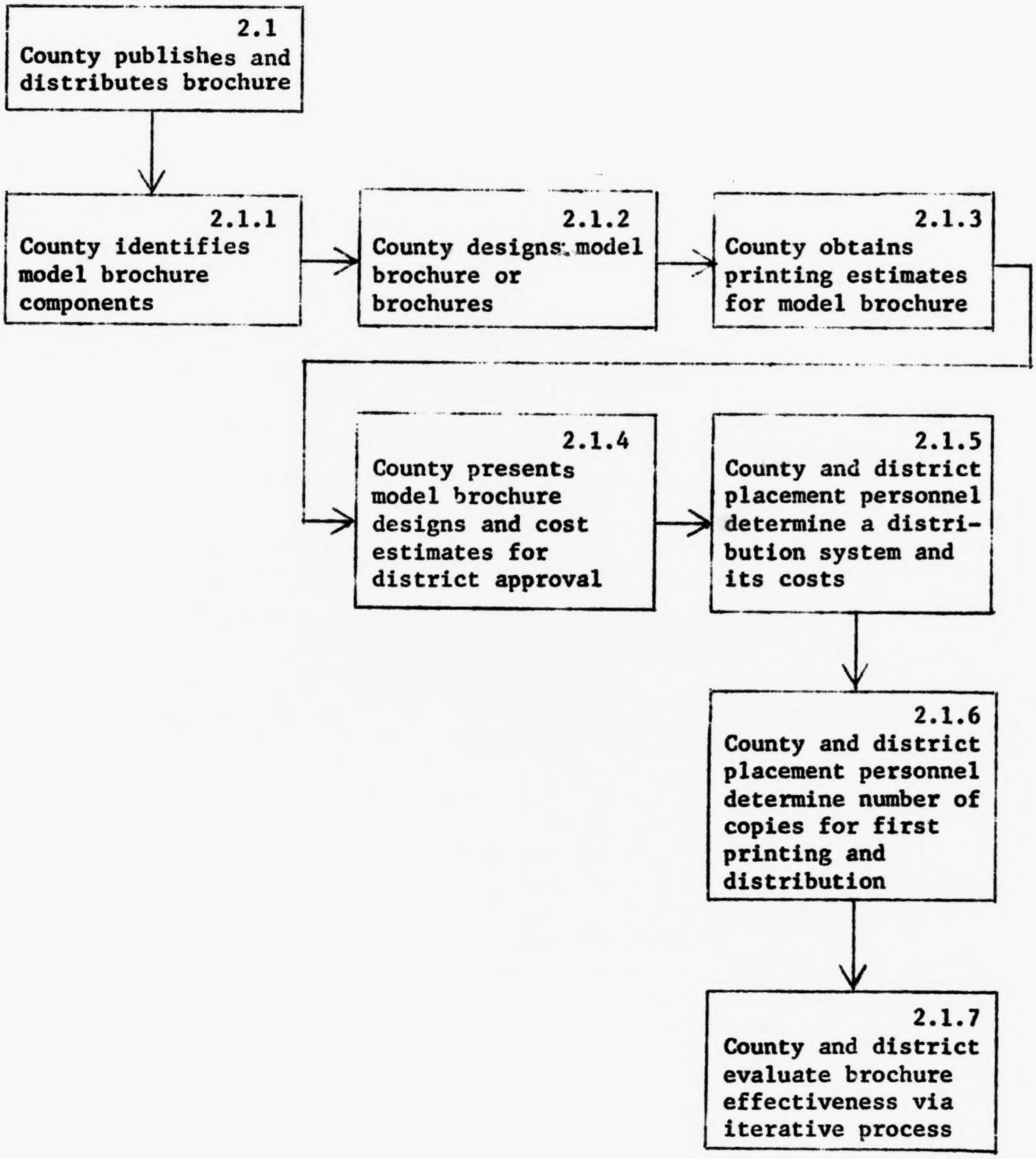

1.0 DETERMINE COUNTY RECRUITMENT NEEDS
2.0 DISSEMINATE COUNTY NEEDS AND P.R. INFORMATION NATIONALLY
3.0 ASSIMILATE APPLICATIONS
1.1 Survey district needs
1.2 Develop system for continuous in-put of needs from districts
2.1 Publish and distribute brochure
2.2 Communicate with college placement bureau
2.3 Communicate with NEA placement bureau
2.4 Communicate with CTA placement bureau
2.5 Communicate with S.D.E. placement bureau
2.6 Establish area representatives and recruiting trips
2.7 Communicate with commercial agencies
3.1 Collect application data
3.2 Process relevant data (credentials, etc.)
3.3 Determine current employment status of candidates

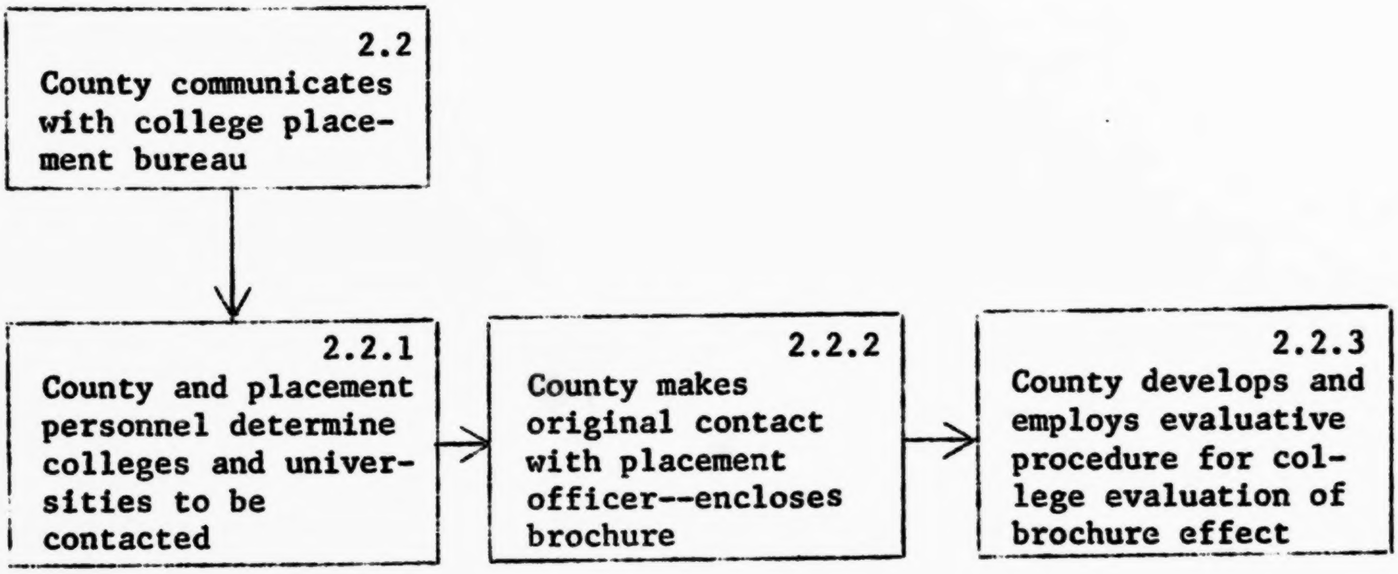
MISSION PROFILE Cont.

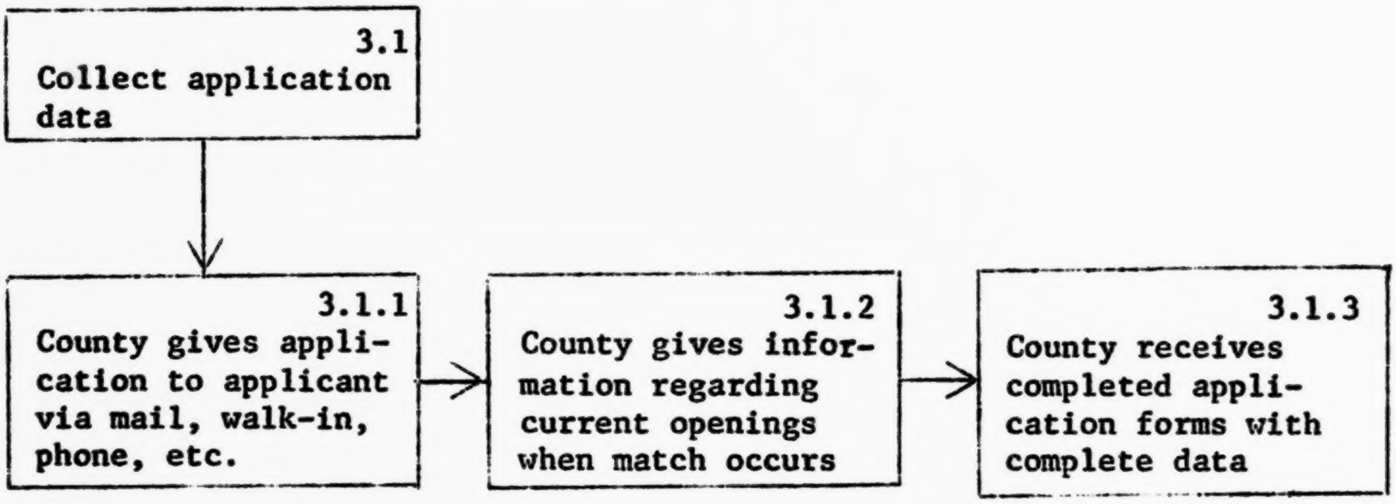

4.0
PROVIDE INFORMATION EXCHANGE AMONG DISTRICTS, CANDIDATES AND COUNTY OFFICE
5.0
EVALUATE AND REVISE ENTIRE SYSTEM
First level
-
Functional Analysis
4.1
County transmits data re candidates
4.2
County makes confidential files available to districts
4.3
Status of candidate to County from district
4.4
Status notice to candidate from district
5.1
Develop evaluative instrument to use with districts
5.2
Develop iterative procedure for County Office
5.3
Determine cost effectiveness
5.4
Revise as indicated

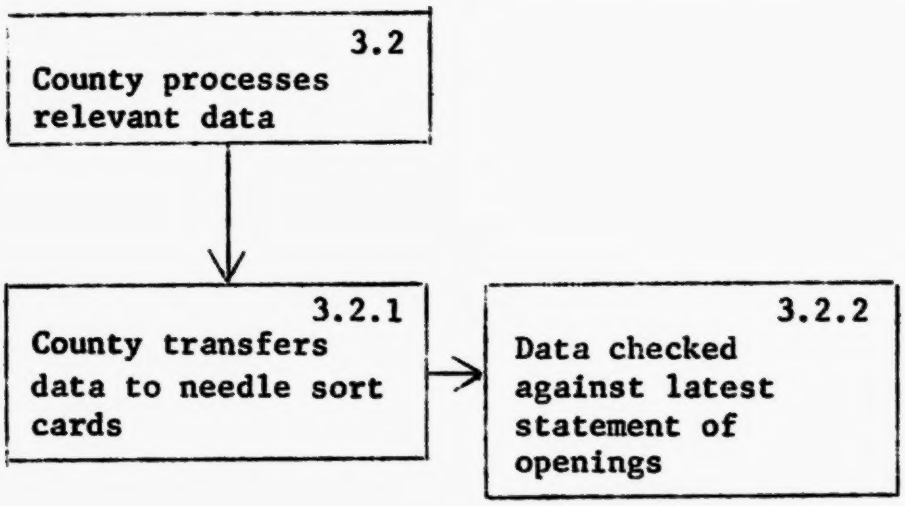

1.1
Survey district needs
1.1.1
County and district placement personnel develop survey form to record needs data at county
1.1.2
County and district placement personnel determine survey methods
1.1.3
County and district placement personnel determine time sequence for surveys
1.1.4
County develops cost evaluation instrument for survey activity
1.1.5
County initiates survey of district needs

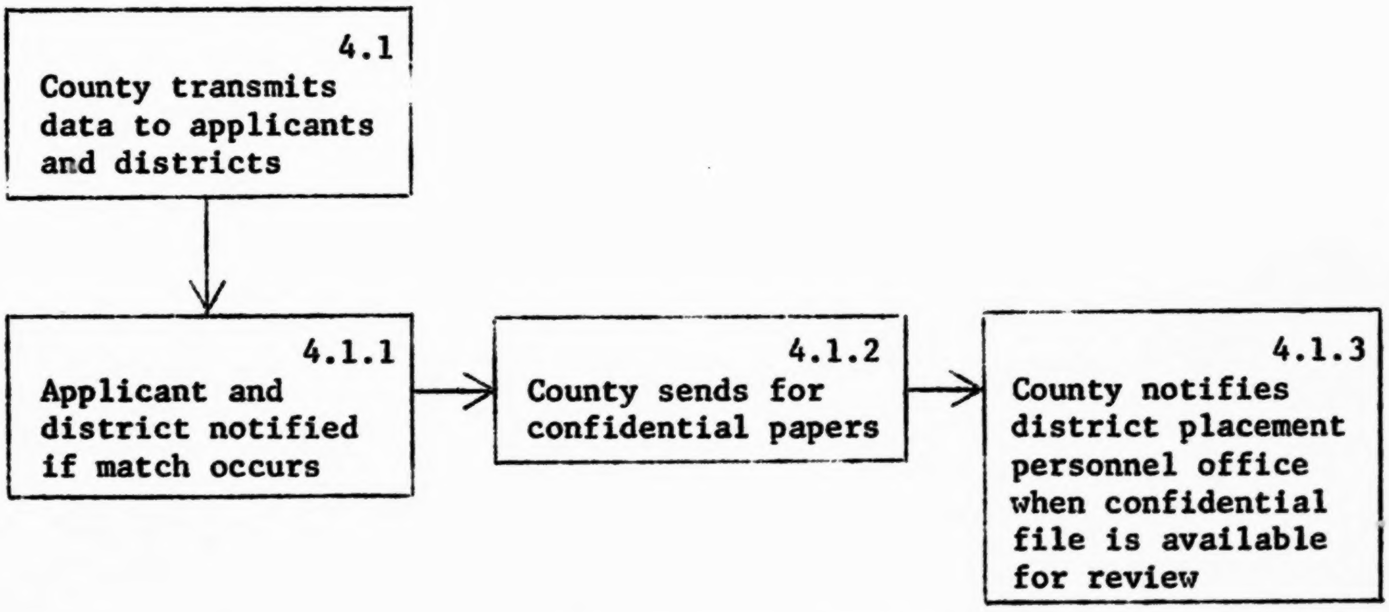

1.2
Provides continuous in-put from districts
1.2.1
County and district placement personnel initiate phone-mail reporting system from district to county
1.2.2
County designs and employs reminder system to districts
1.2.3
County logs in-put data on needs form (1.1.1)

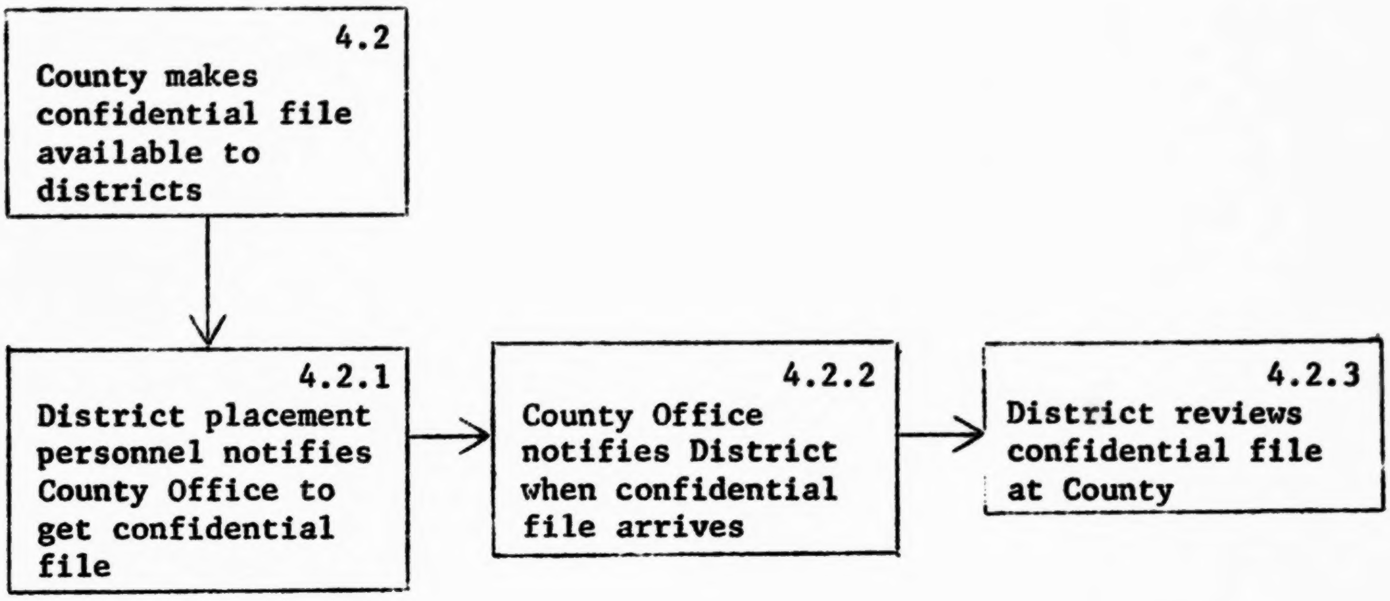

2.1
County publishes and distributes brochure
2.1.1
County identifies model brochure components
2.1.2
County designs model brochure or brochures
2.1.3
County obtains printing estimates for model brochure
2.1.4
County presents model brochure designs and cost estimates for district approval
2.1.5
County and district placement personnel determine a distribution system and its costs
2.1.6
County and district placement personnel determine number of copies for first printing and distribution
2.1.7
County and district evaluate brochure effectiveness via iterative process

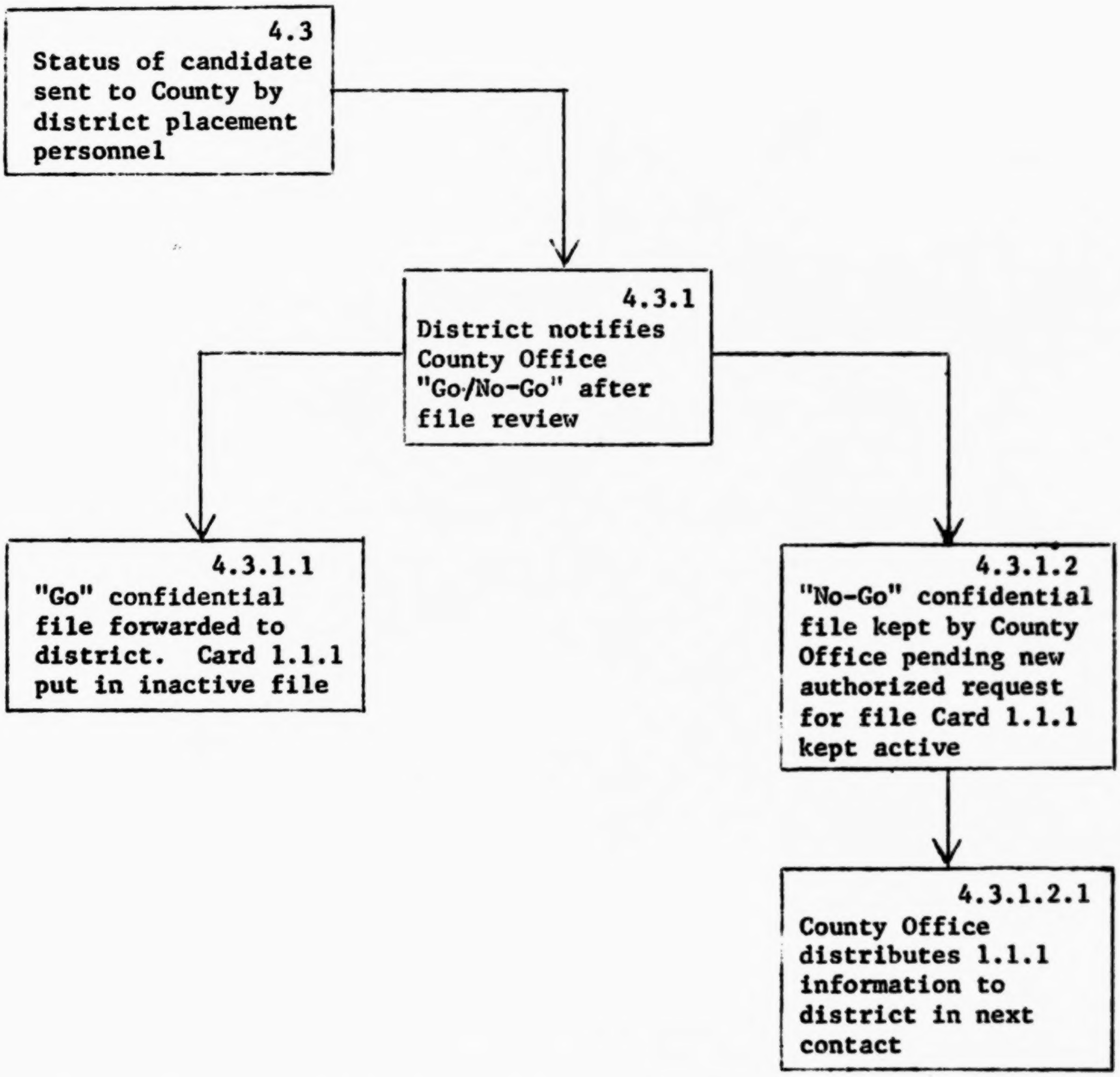

2.2
County communicates with college placement bureau
2.2.1
County and placement personnel determine colleges and universities to be contacted
2.2.2
County makes original contact with placement officer--encloses brochure
2.2.3
County develops and employs evaluative procedure for college evaluation of brochure effect

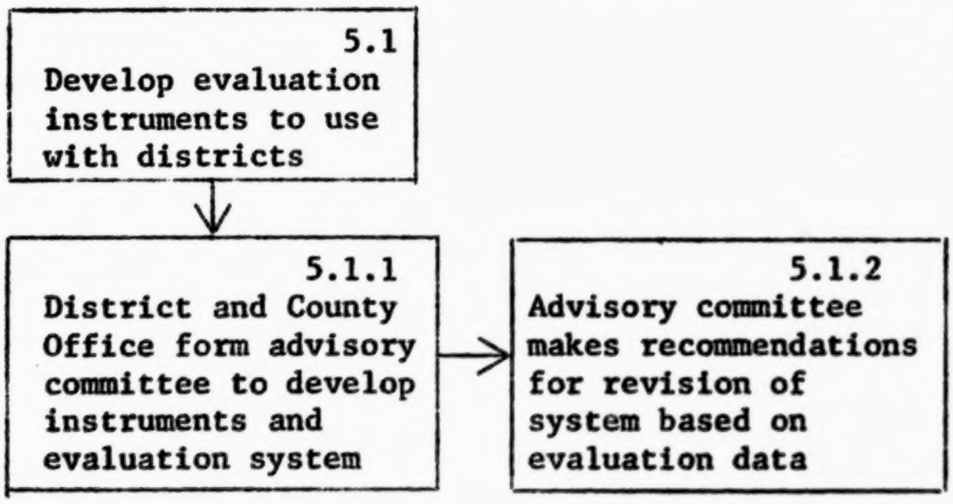

3.1
Collect application data
3.1.1
County gives application to applicant via mail, walk-in, phone, etc.
3.1.2
County gives information regarding current openings when match occurs
3.1.3
County receives completed application forms with complete data

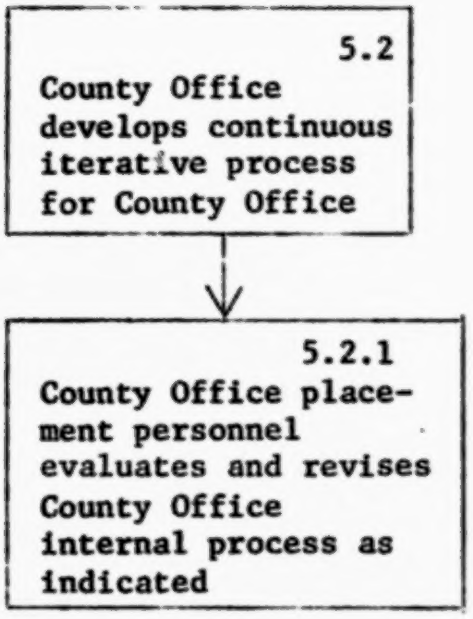

3.2
County processes relevant data
3.2.1
County transfers data to needle sort cards
3.2.2
Data checked against latest statement of openings

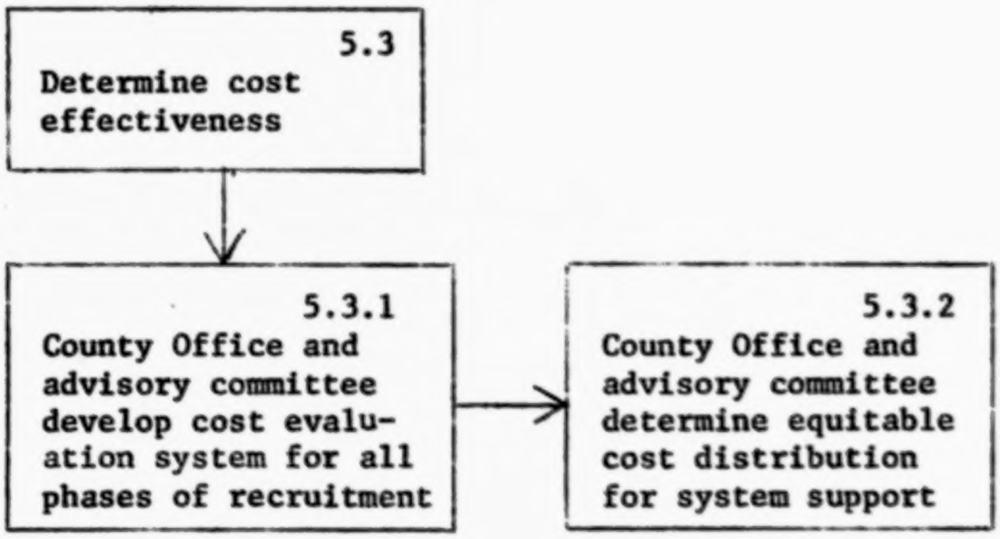

4.1
County transmits data to applicants and districts
4.1.1
Applicant and district notified if match occurs
4.1.2
County sends for confidential papers
4.1.3
County notifies district placement personnel office when confidential file is available for review

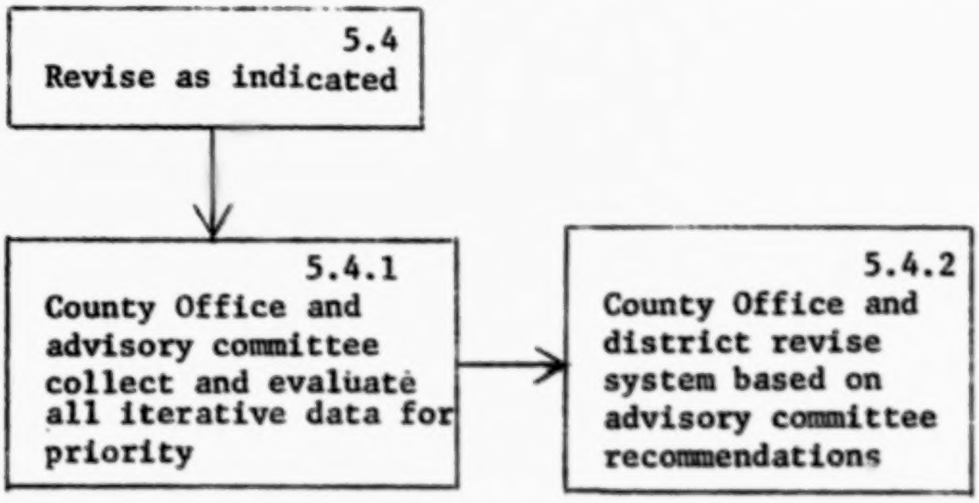

4.2
County makes confidential file available to districts
4.2.1
District placement personnel notifies County Office to get confidential file
4.2.2
County Office notifies District when confidential file arrives
4.2.3
District reviews confidential file at County


4.3
Status of candidate sent to County by district placement personnel
4.3.1
District notifies County Office "Go/No-Go" after file review
4.3.1.1
"Go" confidential file forwarded to district. Card 1.1.1 put in inactive file
4.3.1.2
"No-Go" confidential file kept by County Office pending new authorized request for file Card 1.1.1 kept active
4.3.1.2.1
County Office distributes 1.1.1 information to district in next contact


5.1
Develop evaluation instruments to use with districts
5.1.1
District and County Office form advisory committee to develop instruments and evaluation system
5.1.2
Advisory committee makes recommendations for revision of system based on evaluation data


5.2
County Office develops continuous iterative process for County Office
5.2.1
County Office placement personnel evaluates and revises County Office internal process as indicated


5.3
Determine cost effectiveness
5.3.1
County Office and advisory committee develop cost evaluation system for all phases of recruitment
5.3.2
County Office and advisory committee determine equitable cost distribution for system support


5.4
Revise as indicated
5.4.1
County Office and advisory committee collect and evaluate all iterative data for priority
5.4.2
County Office and district revise system based on advisory committee recommendations

DEVELOPING A PLAN FOR CENTRALIZED IN-SERVICE EDUCATION PROGRAMS

John W. Landrum
Los Angeles County Superintendent of Schools

MISSION STATEMENT:

Develop a plan and undertake initial steps for conducting centralized in-service education programs for credentialed staff members in school districts of Los Angeles County for the 1967-68 school year in line with the provisions of Education Code 9158.

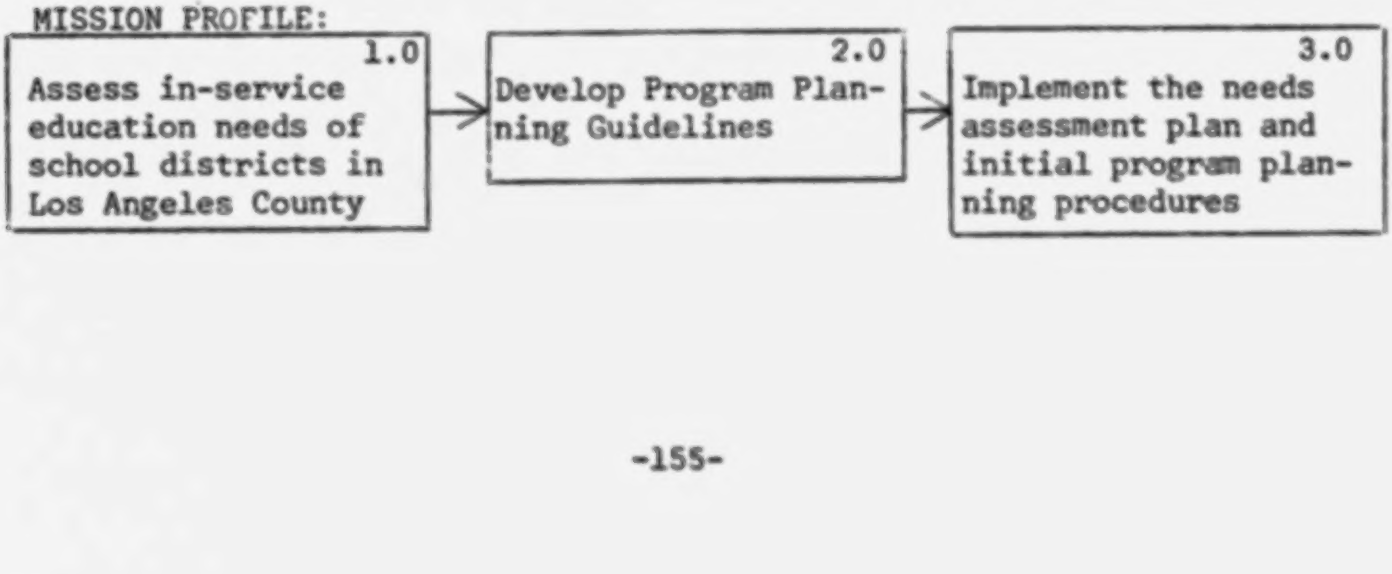
LIMITS:

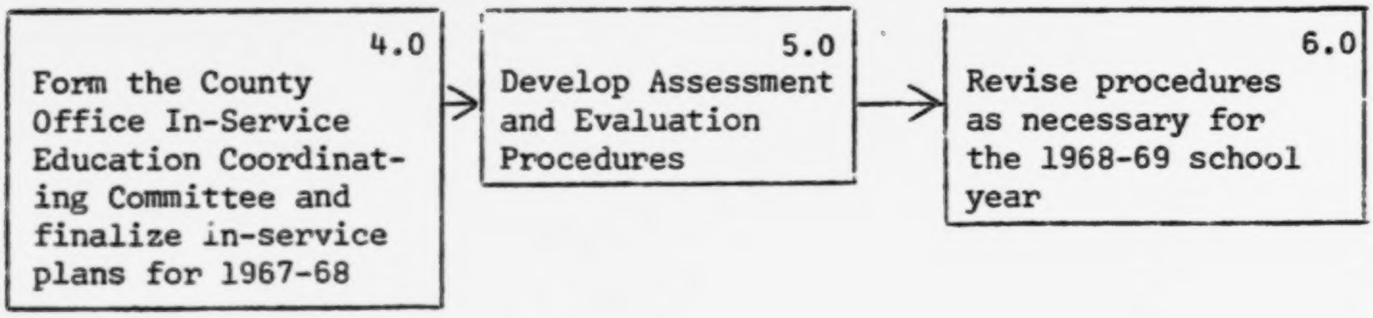
1. Plans to be completed with sufficient lead time to allow area chairmen to work with school districts in identifying needs, developing plans; coordinate with total plan of County Office, and arrange for resources.
2. Plan must work within budget limitations of approximately:
   In-service: $19,000 (Institute budget)
   Coordination: $15,000
   Consider dove-tailing with district plans and resources to augment the program.
3. Provide for a program of in-service education in direct service districts.
4. Consider a plan which will emphasize in-depth, continuing programs rather than "one-shot," "quickie," institute programs!

CONSTRAINTS:

1. Utilize the abilities and talents of County Office professional staff (task force approach wherever possible).
2. Consider and coordinate the wide range of in-service resources available and now in existence; i.e., programs now planned, in process of planning or that could be planned by associations, C.T.A., individual school districts.
3. Utilize the existing planning framework in shaping programs for 1967-68; i.e.,
    a. designation of area chairmen,
    b. assignment of County Office inter-divisional teams,
    c. area chairmen and inter-divisional teams work with school districts in area meetings to identify needs, designate resources, develop in-service plans, implement approved programs, carry out evaluation procedures.
4. Give major consideration in 1967-68 to those elementary and union high school districts for which Institute Programs were planned in the past, but invite city and unified districts to attend area planning meetings for purposes of coordination and actual involvement where it appears feasible.

MISSION PROFILE:


1.0
Assess in-service education needs of school districts in Los Angeles County
2.0
Develop Program Planning Guidelines
3.0
Implement the needs assessment plan and initial program planning procedures


4.0
Form the County Office In-Service Education Coordinating Committee and finalize in-service plans for 1967-68
5.0
Develop Assessment and Evaluation Procedures
6.0
Revise procedures as necessary for the 1968-69 school year

Functions to be considered in implementing the plan:

1.0 Develop a procedure utilizing the existing planning framework of area chairman, inter-divisional teams, and area planning meetings for the assessment of in-service education needs of school districts in Los Angeles County for 1967-68 with a long-range objective of developing a continuous (yearly) approach to needs assessment.

  1.1 Develop assessment instruments as a means of gathering data from both school districts and County Office staff.

    1.1.1 Provide for the identification of problems and areas of concern.

    1.1.2 Identify specific groups to be served (teachers, administrators, coordination and other supportive services personnel).

    1.1.3 Identify programs now in process or planned for the future.

    1.1.4 Assess the extent to which districts might share the cost of the programs.

2.0 Develop program planning guidelines.

  2.1 Identify emerging criteria for in-service program development.

    2.1.1 Base all programs on areas of concern identified in the needs assessment procedure.

    2.1.2 Recommend and give priority to the development of in-depth programs having specific characteristics.

      2.1.2.1 (Illustration) A sequence of meetings with such characteristics as:
      1. a central topic or focus,
      2. a continuing consultant with other resources as needed,

3. provision for both small and large group interaction,
4. provision for adequate meeting time covering a span of half or full working day and scheduled either in a short time block or over an extended period of time. (Could include face-to-face interaction and/or mass media communication; i.e., television, radio, etc.) Example: Leadership Series

2.1.2.2 (Illustration) A motivational presentation, face-to-face or via mass media, followed by a sequence of intra-district or inter-district meetings with continuing leadership from an outside agency to accomplish specified goals. Example: Marie Fielder doing the motivational presentation followed by meetings dealing with local problems.

2.1.2.3 (Illustration) A single meeting on a narrowly defined topic to meet a very specific need. Such a meeting would require that the consultant(s) be highly skilled in the technical aspects of the topic. The problem should be solved in the time allocated. Example: A writing conference on the mechanics of writing an ESEA, Title II proposal.

2.1.3 Focus programs on administrative and leadership personnel as well as other certificated staff.

2.1.4 Encourage inter-district programs without eliminating the development of intra-district programs.

2.1.5 Seek wherever possible to pool financial resources in the development of programs.

2.1.6 Build continuing program evaluation into the system.

*2.2 Identify what other educational and non-educational agencies are doing and planning for in-service education programs for 1967-68.

*2.3 Develop a plan for establishing a master file of local and non-local consultant resources which would be available to County Office staff and school districts.

3.0 Implement the need assessment plan and initial program planning procedures.

  3.1 Call a meeting of area chairmen and brief them on the plan allowing for discussion and modification.

    3.1.1 Explain the needs assessment plan.

    3.1.2 Present and modify or add to the program planning criteria (under 2.0).

    3.1.3 Reach an agreement on the attendance of unified and city school districts at area planning meetings and agree on the opportunity for involvement which can be extended to these districts for the 1967-68 school year.

  3.2 Hold area meetings

    3.2.1 Explain the new plan.

    3.2.2 Complete the needs assessment.

    3.2.3 Identify areas of concern.

    3.2.4 Identify extent to which district budgets might augment County Office budget.

    3.2.5 Tentatively outline the plan of action to be submitted to the County Office In-Service Education Coordinating Committee. Include a list of consultants (local and non-local) who are desired as resource personnel.

4.0 Form the County Office In-Service Education Coordinating Committee and finalize plans for the 1967-68 in-service program.

  4.1 Organize groups and formulate purposes and functions.

  4.2 Review the reports and plans coming out of the area planning meetings.

  4.3 Determine priorities for program by weighing such factors as criticality of the need, practicality for implementation, budget available, adherence to program criteria, etc.

  4.4 Work with area chairmen to develop a tentative master schedule of programs.

4.5 Area chairmen and appropriate inter-divisional teams work with school districts to finalize plans regarding resources, dates of meetings, and then report results to "Institute" office.

4.6 Coordinate and arrange for the procurement of consultant resources through the "Institute" office.

4.7 Finalize the schedule of in-service programs for the county.

*5.0 Develop assessment and evaluation procedures for the total in-service plan.

*6.0 Review procedures as necessary for the 1968-69 school year.

*Areas so marked indicate a need to assign that function to a committee or Task Force group as a single mission to formulate a plan in detail and provide for its implementation.

DEVELOPING A CONSULTANT RESOURCE FILE FOR IN-SERVICE EDUCATION

Lester W. Ristow
Los Angeles County Superintendent of Schools

For many years the Office of the Los Angeles County Superintendent of Schools has conducted an institute program for the personnel in elementary, secondary, junior college, and unified districts of the County. The program has been operated by an Institute Office under the direction of an institute clerk. The advisory and policy making body for the Institute Office has been the Institute Executive Committee composed of division directors.

Through this program the teachers, administrators, and special services personnel working with more than one and a half million pupils have had available for their professional growth the best known and most highly qualified consultants in the nation. More than 1,000 in-service education programs have been offered annually by means of television, radio, and meetings at centralized locations.

An important feature of this service has been the role of the County Institute Office in coordinating the in-service programs of school districts so that consultant resources from outside the County and outside the State could be made available at minimum expense to districts, and maximum convenience for consultants.

By coordinating the needs and desires of districts with the available time of consultants the Institute Office has been able to arrange with a consultant from New York, Florida, or Ohio so that he would be assured of a full schedule and would know before he arrived exactly where, when, and with whom he would consult, what subjects he would deal with, and how he would get to each location, as well as how much he would receive for fees and expenses and when he would be remunerated. By prorating all expenses among participating districts and other county offices the Institute Office has made it possible for participants to save money by sharing expenses while at the same time consultants have had the convenience of dealing with a single agency.

Beginning this year the Los Angeles County Office will no longer conduct an institute program. However, the former institute program will be replaced by a greatly expanded in-service education program in which the County Office will conduct in-service education and will continue to coordinate district in-service education programs. The Institute Office will become the In-Service Education Office and the Institute Executive Committee has been redesignated the In-Service Executive Committee (I.S.E.C.).

In an effort to facilitate and improve the coordination services of the In-service Education Office the I.S.E.C. decided to develop a file for the storage and rapid retrieval of pertinent data concerning consultant resources so that school district personnel would have available a reliable and up-to-date source of information regarding consultants for in-service education. A planning committee, including Los Angeles County's three participants in the PEP project, was appointed to produce a plan for developing a consultant resource file for in-service education. The "hand-out" (exhibit "A") is the "first-cut" at developing such a plan. The second stage of planning was the production of a functional analysis (exhibit "B") which was then transferred to a functional analysis chart. As we now perceive our task, the next step will be a methods-media-personnel allocation and probably the construction of a P.E.R.T. diagram, after which we will attempt to implement the plan.

The Los Angeles County Office was very fortunate in being able to have three participants in the PEP project. Without the mutual support of three participants it seems very unlikely that we could have made such rapid progress in introducing the "system approach" to our large staff of more than 80 professional members with their widely divergent interests. Because we did have three participants we have been able to make use of a "system approach" in several instances including the evaluation of a district guidance program, the revision of the pupil reporting system in a district, the writing of a project application for funding under ESEA Title III, the scheduling for a national convention, a plan for providing in-service education, the analysis of recruitment and employment procedures for both classified and certificated personnel, and some job analyses.

Among our first efforts was a plan to involve the entire staff, the administration, and the Board of Education in the study and implementation of the recommendations of the County Office Reorganization Study.

The Reorganization Study was a very elaborate study carried on by a large team of widely recognized educational leaders. After a study of such a plan. The second stage of planning was the production of a functional analysis (exhibit "B") which was then transferred to a functional analysis chart. As we now perceive our task, the next step will be a methods-media-personnel allocation and probably the construction of a P.E.R.T. diagram, after which we will attempt to implement the plan.

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The Reorganization Study was a very elaborate study carried on by a large team of widely recognized educational leaders. After a study of

8:00 a.m. we are free to do all the planning we want to. Quite frankly that is exactly how we have developed the plans we have produced thus far.

3. A completed functional analysis, a methods-media allocation, or a P.E.R.T. diagram is very impressive to the uninitiated. The response we get is usually one of amazement with such comments as, "Isn't it beautiful," "Oh, such a lot of detail," "When did you find time to do all that?" (Often with the implication that you must have neglected your "real" and "important" work.)

   Everyone is impressed or even amazed, but no one bothers to read the plan or understand it. We have concluded that every plan must be explained, interpreted, and reviewed, step by step, with every person who will be involved in its implementation.
4. Absolutely everything in the world is infinitely more complicated than it appears to be. No matter how carefully you plan, or how detailed your analysis, you may be sure that you have missed something, and probably something very important.
5. A management system is absolutely essential. SIROS stalled and nearly "came apart at the seams" until we established a steering committee to supervise it and make necessary modifications and decisions.
6. There is some resistance to the system approach simply

because it is different and unfamiliar. There is often very strong resistance to carrying out plans developed by a system approach. Apparently this resistance is caused by a reluctance to accept responsibility for making decisions and taking action.

A system approach makes it very clear and precise exactly what is to be done, how it is to be done, who is to do it, and when. This precision seems to be intolerable. Staff members prefer to say what should be done in rather vague and general terms and they prefer to leave the responsibility for decision and action to someone else. When precise terminal performance specifications and methods-personnel allocations establish the responsibility for action and decision and set time deadlines, the staff members feel threatened.

EXHIBIT "A"

MISSION OBJECTIVE:

Develop a plan for establishing, operating, and keeping current a system for providing data regarding the availability and qualifications of consultant resources for meeting in-service training needs of personnel in schools in Los Angeles County. Adequacy of the plan will be determined by the speed and efficiency with which the system provides the information needed.

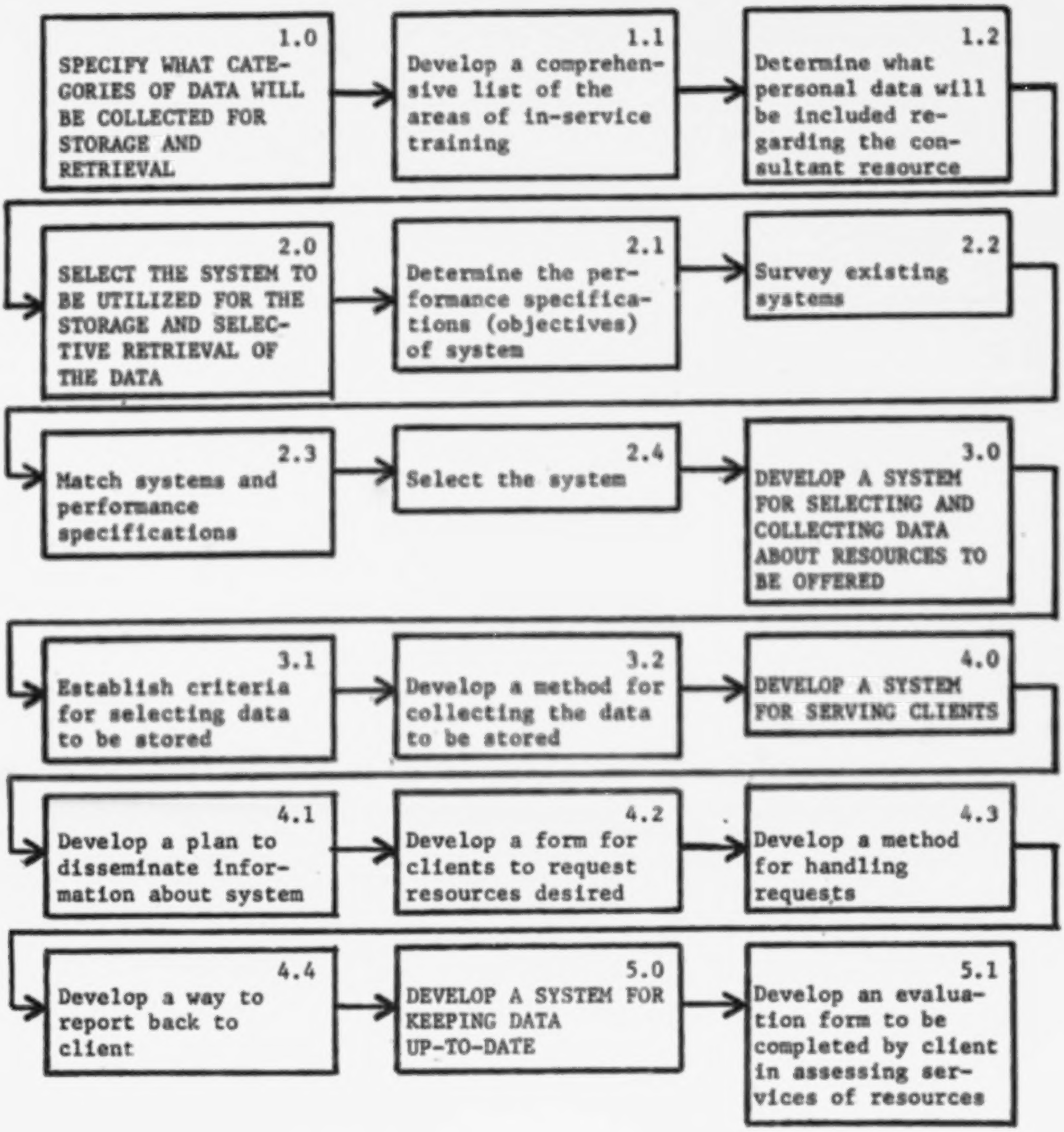
LIMITS:

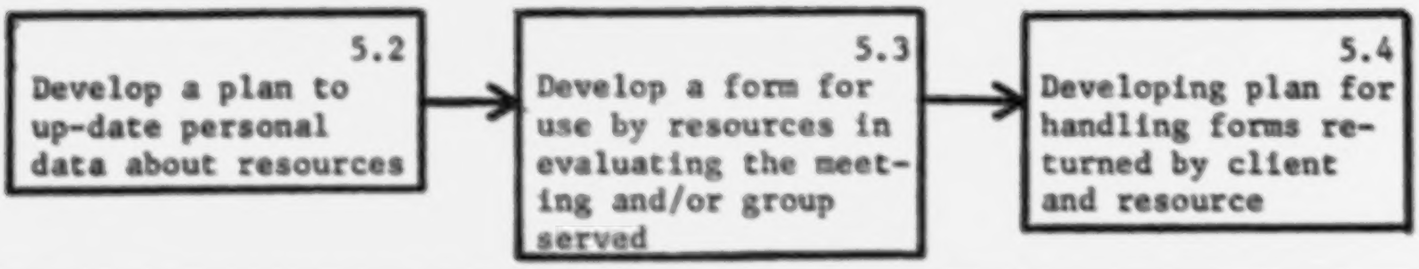
1. Plans to be completed by April 3, 1967.
2. Plan must be acceptable to County Office staff and district personnel who utilize system.
3. Must provide for collecting up-to-date data.
4. Must provide for retrieval and reporting of requested data within at least 24 hours.
5. System must operate within existing budget provisions of institute office.

CONSTRAINTS:

1. Committee of three County Office staff members to complete plans.
2. Planning time of committee limited to approximately 20 hours.
3. No additional personnel to be employed to implement and operate system.
4. Existing equipment in County Office to be utilized to implement system.

MISSION PROFILE


1.0 SPECIFY WHAT CATEGORIES OF DATA WILL BE COLLECTED FOR STORAGE AND RETRIEVAL
1.1 Develop a comprehensive list of the areas of in-service training
1.2 Determine what personal data will be included regarding the consultant resource
2.0 SELECT THE SYSTEM TO BE UTILIZED FOR THE STORAGE AND SELECTIVE RETRIEVAL OF THE DATA
2.1 Determine the performance specifications (objectives) of system
2.2 Survey existing systems
2.3 Match systems and performance specifications
2.4 Select the system
3.0 DEVELOP A SYSTEM FOR SELECTING AND COLLECTING DATA ABOUT RESOURCES TO BE OFFERED
3.1 Establish criteria for selecting data to be stored
3.2 Develop a method for collecting the data to be stored
4.0 DEVELOP A SYSTEM FOR SERVING CLIENTS
4.1 Develop a plan to disseminate information about system
4.2 Develop a form for clients to request resources desired
4.3 Develop a method for handling requests
4.4 Develop a way to report back to client
5.0 DEVELOP A SYSTEM FOR KEEPING DATA UP-TO-DATE
5.1 Develop an evaluation form to be completed by client in assessing services of resources


5.2
Develop a plan to up-date personal data about resources
5.3
Develop a form for use by resources in evaluating the meeting and/or group served
5.4
Developing plan for handling forms returned by client and resource

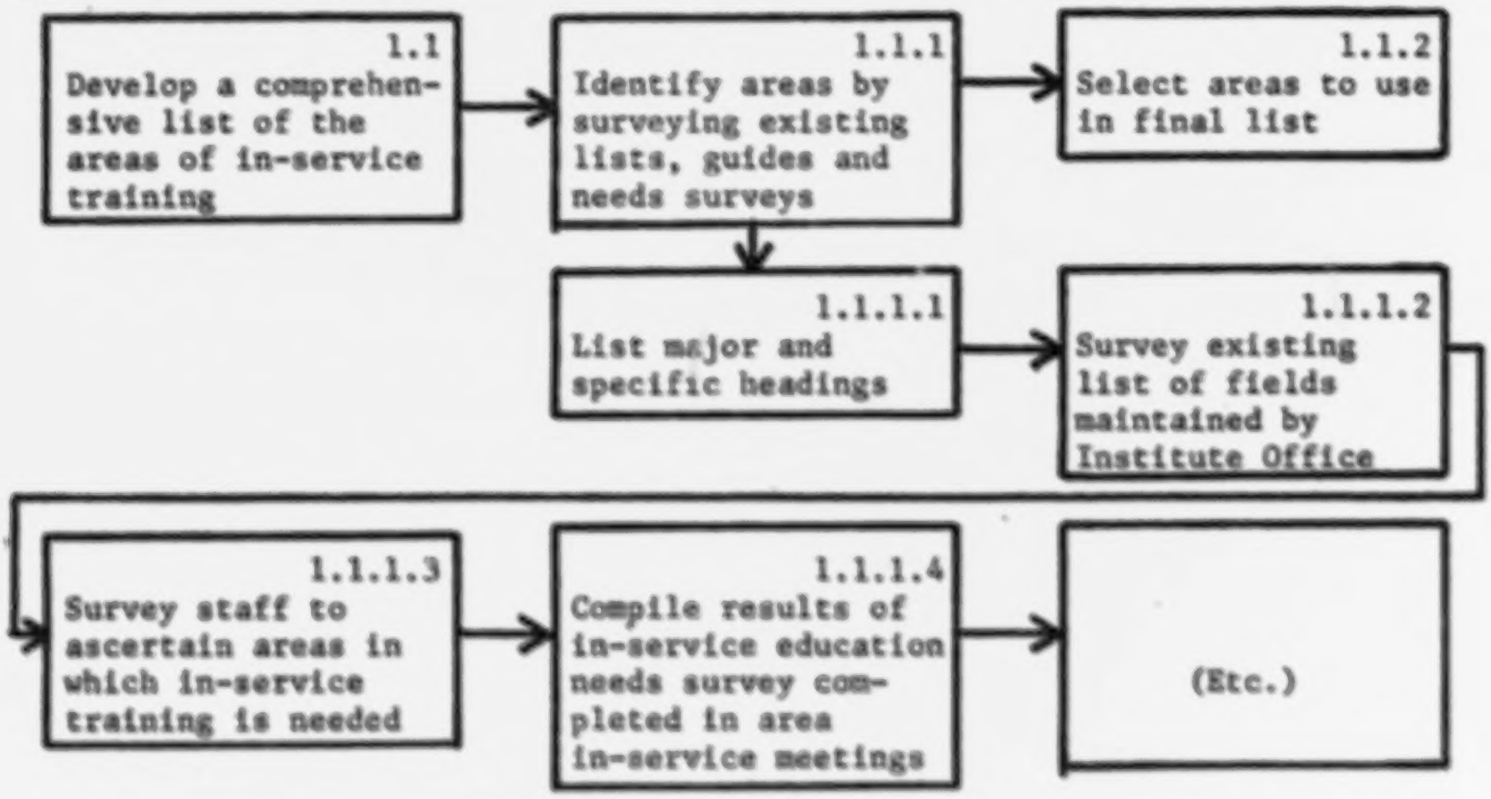

1.1
Develop a comprehensive list of the areas of in-service training
1.1.1
Identify areas by surveying existing lists, guides and needs surveys
1.1.2
Select areas to use in final list
1.1.1.1
List major and specific headings
1.1.1.2
Survey existing list of fields maintained by Institute Office
1.1.1.3
Survey staff to ascertain areas in which in-service training is needed
1.1.1.4
Compile results of in-service education needs survey completed in area in-service meetings
(Etc.)

EXHIBIT "B"

A PLAN FOR DEVELOPING A CONSULTANT RESOURCE FILE FOR IN-SERVICE EDUCATION

1.0 Specify what categories of data are to be collected for storage and retrieval

1.1 Develop a comprehensive list of areas of in-service education

1.1.1 Identify areas by examining existing lists, curriculum guides and needs surveys

1.1.1.1 Determine the topics for which in-service education has been provided through the county institute office

1.1.1.1.1 Obtain a list of topics from the institute secretary

1.1.1.1.2 Examine institute booklets published by the office

1.1.1.1.3 Make a composite list of the items from 1.1.1.1.1 and 1.1.1.1.2

1.1.1.1.3.1 Every topic identified in 1.1.1.1.1 and 1.1.1.1.2 will be included

1.1.1.1.3.2 No topic will appear more than once

1.1.1.2 Examine curriculum guides and identify topics appropriate for in-service education

1.1.1.2.1 Locate and obtain access to curriculum guides

1.1.1.2.2 List topic headings and subheadings suitable as areas of in-service education

1.1.1.2.3 Make a composite list of the areas identified

1.1.1.2.3.1 Every area identified will be listed

1.1.1.2.3.2 No area will be listed more than once

1.1.1.3 Determine the topics in which in-service education is needed

1.1.1.3.1 Make a survey of County Office staff opinion regarding the in-service education needs

1.1.1.3.1.1 Identify possible methods of eliciting staff opinion

1.1.1.3.1.1.1 Determine what methods have been used previously

1.1.1.3.1.1.2 Obtain suggestions from survey specialists

1.1.1.3.1.2 Select the most feasible method for eliciting staff opinion

1.1.1.3.1.2.1 Make a cost/effectiveness analysis of the methods identified

1.1.1.3.1.2.1.1 Calculate the total cost of implementation for each method

1.1.1.3.1.2.1.2 Determine relative effectiveness of each method

1.1.1.3.1.2.1.2.1 Will obtain a high percentage of responses

1.1.1.3.1.2.1.2.2 Will obtain responses in a short time

1.1.1.3.1.2.1.2.3 Will obtain valid responses

1.1.1.3.1.2.1.2.4 Obtained responses will be clear and unambiguous

1.1.1.3.1.2.1.3 Make a statement of total cost and relative effectiveness for each method

1.1.1.3.1.2.2 Present cost/effectiveness data on each method to I.S.E.C.

1.1.1.3.1.2.3 I.S.E.C. makes cost/effectiveness trade-offs and selects method

1.1.1.3.1.2.4 Obtain approval from I.S.E.C. to use the selected method

1.1.1.3.1.3 Implement the selected method

1.1.1.3.1.4 Make a composite list of all topics identified under 1.1.1.3.1.3

1.1.1.3.1.4.1 Every topic identified will be listed

1.1.1.3.1.4.2 No topic will be listed more than once

1.1.1.3.2 Compile a list of in-service education needs expressed in area in-service planning meetings

1.1.1.3.2.1 Obtain a list of expressed in-service education needs from the recorder of each area planning meeting

1.1.1.3.2.2 Make a composite list of the topics identifed under 1.1.1.3.2.1

1.1.1.3.2.2.1 Every topic identified will be listed

1.1.1.3.2.2.2 No topic will be listed more than once

1.1.1.3.3 Compile a list of in-service education needs identified by needs-survey of the LA PACE Center.

1.1.1.3.3.1 Obtain lists of in-service education needs from Director of LA PACE

1.1.1.3.3.2 Make a composite list from the lists obtained under 1.1.1.3.1

1.1.1.3.3.2.1 Every topic identifed will be listed

1.1.1.3.3.2.2 No topic will be listed more than once

        - 1.1.1.4 Make a composite list of the in-service education topics listed under 1.1.1.1.3, 1.1.1.2.3, 1.1.1.3.1.4, 1.1.1.3.2.2, 1.1.1.3.3.2
            - 1.1.1.4.1 Every topic identified will be listed
            - 1.1.1.4.2 No topic will be listed more than once
    - 1.1.2 Select a system for cataloging I.S.E. topics
        - 1.1.2.1 Develop specifications for a satisfactory cataloging system
            - 1.1.2.1.1 Obtain statement of objectives from I.S.E.C.
            - 1.1.2.1.2 Obtain statement of limitations from I.S.E.C.
            - 1.1.2.1.3 Convert objectives and limitations into statement of terminal performance specifications
        - 1.1.2.2 Obtain data regarding existing systems
            - 1.1.2.2.1 Solicit information from County Office staff
            - 1.1.2.2.2 Observe available systems in operation
            - 1.1.2.2.3 Obtain information from specialists
        - 1.1.2.3 Obtain suggestions for modifications of existing systems
            - 1.1.2.3.1 Solicit suggestions from County Office staff
            - 1.1.2.3.2 Solicit suggestions from users of existing systems
            - 1.1.2.3.3 Obtain suggestions from specialists
        - 1.1.2.4 Request the development of new systems
            - 1.1.2.4.1 Encourage development by County Office staff
            - 1.1.2.4.2 Request development by specialists
        - 1.1.2.5 Make a cost/effectiveness analysis of systems identified in 1.1.2.2, 1.1.2.3, and 1.1.2.4

1.1.2.5.1 Calculate total cost of implementation for each system

1.1.2.5.2 Determine relative effectiveness of each system in terms of T.P.S.

1.1.2.6 Present cost/effectiveness data to I.S.E.C. for selection of system

1.1.2.6.1 I.S.E.C. makes cost/effectiveness trade-offs and selects system

1.1.2.6.2 Obtain authority from I.S.E.C. to use the selected system

1.1.2.7 Implement selected system

1.2 Determine what data will be included regarding consultant resources

1.2.1 Determine what data are used in present practice

1.2.1.1 Collect available forms being used to record data about consultant resources

1.2.1.1.1 Obtain forms used by other county offices, school districts, and private schools

1.2.1.1.2 Obtain forms from colleges, universities, trade-technical schools

1.2.1.1.3 Obtain forms from professional organizations, associations, and unions

1.2.1.1.4 Obtain forms from government and public agencies

1.2.1.1.5 Obtain forms from business, industry, chambers of commerce, manufacturers' associations

1.2.1.1.6 Obtain forms from service clubs, churches, speakers' bureaus

1.2.1.2 Compile a composite list of the items called for on all forms collected in 1.2.1.1.1 through 1.2.1.1.6

        - 1.2.1.2.1 Every item identified will be listed
        - 1.2.1.2.2 No item will be listed more than once
- 1.2.2 Determine what client personnel want to know about consultant resources
    - 1.2.2.1 Identify possible methods of obtaining responses from clients
        - 1.2.2.1.1 Determine what methods have been used previously
        - 1.2.2.1.2 Elicit suggested methods from County Office staff
        - 1.2.2.1.3 Obtain suggestions from specialists
    - 1.2.2.2 Select the most feasible method
        - 1.2.2.2.1 Make a cost/effectiveness analysis of each method identified
            - 1.2.2.2.1.1 Calculate the total cost of implementation for each method
            - 1.2.2.2.1.2 Determine the relative effectiveness of each method
                - 1.2.2.2.1.2.1 Will obtain a high percentage of responses
                - 1.2.2.2.1.2.2 Will obtain responses in a short time
                - 1.2.2.2.1.2.3 Will obtain valid responses
                - 1.2.2.2.1.2.4 Obtained responses will be clear and unambiguous
            - 1.2.2.2.1.3 Make a statement of total cost and relative effectiveness of each method
        - 1.2.2.2.2. Present cost/effectiveness data on each method to I.S.E.C.
        - 1.2.2.2.3 I.S.E.C makes cost/effectiveness tradeoffs and selects method

1.2.2.2.4 Obtain approval from I.S.E.C. to use the selected method

1.2.2.3 Implement the selected method

1.2.2.4 Make a composite list of the items identified under 1.2.2.3

1.2.2.4.1 Every item identified will be listed

1.2.2.4.2 No item will be listed more than once

1.2.3 Compile a composite list of the items listed in 1.2.1.2 and 1.2.2.4

1.2.3.1 Every item identified will be listed

1.2.3.2 No item will be listed more than once

1.2.4 Select from the composite list (1.2.3) the itwms to be included in this system

1.2.4.1 Obtain from I.S.E.C. the specifications for items to be included

1.2.4.2 Develop a quantitative scoring system to determine the degree to which items meet the specifications

1.2.4.2.1 Obtain from I.S.E.C. the standards for applying the scoring system

1.2.4.2.2 Obtain approval from I.S.E.C. to use the

1.2.4.3 Implement the scoring system

1.2.4.3.1 Compile a list of the items selected by 1.2.4.3

1.2.4.4 Obtain approval from I.S.E.C. to use the items listed in 1.2.4.3.1

2.0 Select a system to be used for storage and selective retrieval of the data identified under 1.0

2.1 Determine the performance specifications of the system

2.1.1 Determine what clients (including County Office staff) would like to have the system do

  - 2.1.1.1 Identify possible methods of eliciting client responses
    - 2.1.1.1.1 Identify methods previously used
    - 2.1.1.1.2 Elicit suggestions from County Office staff
    - 2.1.1.1.3 Obtain suggestions from specialists
  - 2.1.1.2 Select the most feasible method
    - 2.1.1.2.1 Make a cost/effectiveness analysis of each method
      - 2.1.1.2.1.1 Calculate total cost of implementing each method
      - 2.1.1.2.1.2 Determine the relative effectiveness of each method
        - 2.1.1.2.1.2.1 Will obtain a high percentage of responses
        - 2.1.1.2.1.2.2 Will obtain responses in a short time
        - 2.1.1.2.1.2.3 Will obtain valid responses
        - 2.1.1.2.1.2.4 Obtained responses will be clear and unambiguous
      - [illegible] relative effect of total cost and method
    - 2.1.1.2.2 I.S.E.C. makes cost/effectiveness trade-offs and selects the most feasible method
  - 2.1.1.3 Obtain approval from I.S.E.C. to use the selected method
  - 2.1.1.4 Implement the selected method
  - 2.1.1.5 Compile a composite list of the items obtained in 2.1.1.4

2.1.1.5.1 Every item identified in 2.1.1.4 will be listed

2.1.1.5.2 No item will be listed more than once

2.1.1.6 Convert all items on the composite list (2.1.1.5) into performance specifications

2.1.1.6.1 For each item identify exactly what performance is required

2.1.1.6.2 For each item define the required level of proficiency

2.1.1.6.3 State the conditions under which the performance must be accomplished

2.1.1.6.4 Describe the methods by which performance will be evaluated

2.1.2 Determine what the consultant resources want the system to do

2.1.2.1 Identify possible methods of eliciting responses from the consultant resources

2.1.2.1.1 Identify methods previously used

2.1.2.1.2 Elicit suggestions from County Office staff

2.1.2.1.3 Obtain suggestions from specialists

2.1.2.2 Select the most feasible method

2.1.2.2.1 Make a cost/effectiveness analysis of each

2.1.2.2.1.1 Calculate the total cost of implementation for each method

2.1.2.2.1.2 Determine the relative effectiveness of each method

2.1.2.2.1.2.1 Will obtain a high percentage of responses

2.1.2.2.1.2.2 Will obtain responses in a short time

        - 2.1.2.2.1.2.3 Will obtain valid responses
        - 2.1.2.2.1.2.4 Obtained responses will be clear and unambiguous
      - 2.1.2.2.1.3 Make a statement of total cost and relative effectiveness for each method
    - 2.1.2.2.2 I.S.E.C. makes cost/effectiveness trade-offs and selects the most feasible method
  - 2.1.2.3 Obtain approval from I.S.E.C. to use the selected method
  - 2.1.2.4 Implement the selected method
  - 2.1.2.5 Compile a composite list of the items obtained in 2.1.2.4
    - 2.1.2.5.1 Every item identified in 2.1.2.4 will be listed
    - 2.1.2.5.2 No item will be listed more than once
  - 2.1.2.6 Convert all items on the composite list (2.1.2.5) into performance specifications
    - 2.1.2.6.1 For each item identify exactly what performance is required
    - 2.1.2.6.2 For each item define the required level of proficiency
    - 2.1.2.6.3 State the conditions under which the performance must be accomplished
    - 2.1.2.6.4 Describe the method by which performance will be evaluated
- 2.1.3 Compile a composite statement of all the performance specifications identified under 2.1.1.6 and 2.1.2.6
  - 2.1.3.1 Every performance specification identified will be included
  - 2.1.3.2 No performance specification will be included more than once

- 2.1.4 Select the most feasible performance specifications for the system
    - 2.1.4.1 Submit the composite statement of performance specifications (2.1.3) to the I.S.E.C.
    - 2.1.4.2 I.S.E.C. selects the performance specifications for the system
    - 2.1.4.3 Obtain approval from I.S.E.C. to use the selected performance specifications for selection of a system

2.2 Investigate the feasibility of available systems

- 2.2.1 Observe demonstrations of available systems
    - 2.2.1.1 Submit specifications to all available vendors of systems and request demonstrations
    - 2.2.1.2 Request information about and opportunity to observe systems in use by other agencies and institutions
- 2.2.2 Determine the relative effectiveness of each system observed
    - 2.2.2.1 Make a match/mismatch analysis of the capabilities of each system with the selected performance specifications
- 2.2.3 Determine the total cost of implementation for each system investigated
    - 2.2.3.1 Obtain data on cost of acquisition of each system from vendors and users
    - 2.2.3.2 Obtain data on cost of installation of each system from vendors and users
    - 2.2.3.3 Obtain data on cost of operation of each system from vendors and users
    - 2.2.3.4 Obtain data on cost of maintenance of each system from vendors and users
    - 2.2.3.5 Calculate total cost of implementation of each system from data obtained in 2.2.3.1 through 2.2.3.4

2.2.4 Make a statement of total cost and relative effectiveness for each system

2.2.4.1 Include the data from 2.2.2.1 and 2.2.3.5 in the statement

2.3 Select the system to be used

2.3.1 Submit to I.S.E.C. the cost/effectiveness statement developed under 2.2.4

2.3.2 I.S.E.C. makes cost/effectiveness trade-offs and selects the system to be used

2.4 Obtain approval from I.S.E.C. to use the selected system

3.0 Develop a system for collecting the data to be stored

3.1 Select the sources of data

3.1.1 Determine the sources used to obtain data for the forms collected under 1.2.1.1

3.1.1.1 Select a method for obtaining information regarding sources of data used by the personnel who provided forms under 1.2.1.1

3.1.1.1.1 Identify possible methods of eliciting responses

3.1.1.1.1.1 Determine what methods have been used previously

3.1.1.1.1.2 Obtain suggestions from specialists

3.1.1.1.2 Select the most feasible method

3.1.1.1.2.1 Make a cost/effectiveness analysis of the methods identified

3.1.1.1.2.1.1 Calculate the total cost of implementation for each method

3.1.1.1.2.1.2 Determine the relative effectiveness of each method

3.1.1.1.2.1.2.1 Will obtain a high percentage of responses

3.1.1.1.2.1.2.2. Will obtain responses in a short time

3.1.1.1.2.1.2.3 Will obtain valid responses

3.1.1.1.2.1.2.4 Obtained responses will be clear and unambiguous

3.1.1.1.2.1.3 Make a statement of total cost and relative effectiveness of each method

3.1.1.1.2.2 Submit cost/effectiveness data on each method to I.S.E.C.

3.1.1.1.2.3 I.S.E.C. makes cost/effectiveness trade-offs and selects methods

3.1.1.1.2.4 Obtain approval from I.S.E.C. to use the selected method

3.1.1.1.3 Implement the selected method

3.1.1.2 Compile a composite list of the sources identified by 3.1.1.1.3

3.1.1.2.1 Every source identified will be listed

3.1.1.2.2 No source will be listed more than once

3.1.2 Elicit suggestions of sources of data concerning consultant resources from County Office staff

3.1.2.1 Use the method approved under 1.1.1.3.1.2.4

3.1.2.2 Compile a composite list of the sources identified under 3.1.2.1

3.1.2.2.1 Every source identified under 3.1.2.1 will be listed

3.1.2.2.2 No source will be listed more than once

3.1.3 Obtain suggestions of sources of data concerning consultant resources from client personnel

3.1.3.1 Use the procedure approved under 1.2.2.2.4

3.1.3.2 Compile a composite list of the sources identified under 3.1.3.1

3.1.3.2.1 Every source identified under 3.1.3.1 will be listed

3.1.3.2.2 No source will be listed more than once

3.1.4 Compile a composite list of the sources listed under 3.1.1.2, 3.1.2.2, and 3.1.3.2

3.1.4.1 Every source identified will be listed

3.1.4.2 No source will be listed mored than once

3.1.5 Select from the composite list under 3.1.4 the sources to be used in this system

3.1.5.1 Submit the composite list (3.1.4) to I.S.E.C. for selection of the sources to be used

3.1.5.2 Obtain approval from I.S.E.C. to use the sources selected

3.2 Select a method for collecting the data to be stored

3.2.1 Determine what form is required for data input into the system approved under 2.4

3.2.1.1 Obtain suggestions from data input specialists

3.2.1.2 Make a cost/effectiveness analysis for each input form suggested under 3.2.1.1

3.2.1.2.1 Calculate total cost of implementation for each form

3.2.1.2.2 Determine relative effectiveness of each form

3.2.1.2.2.1 Criteria for determining relative effectiveness are:

3.2.1.2.2.1.1 Speed, convenience, accuracy, easy means of modifying data

3.2.1.3 Make a statement of total cost and relative effectiveness for each suggested form

3.2.1.4 I.S.E.C. makes cost/effectiveness trade-offs and selects form

3.2.1.5 Obtain approval from I.S.E.C. to use selected form

3.2.1.6 Implement use of the selected form

3.2.2 Select a method for obtaining the input data approved under 1.2.4.4 from the sources approved under 3.1.5.2

3.2.2.1 Use the procedure outlined under 1.2.2.1 through 1.2.2.2.3

3.2.2.2 Obtain approval from I.S.E.C. to use the method selected

3.2.3 Obtain input data according to method selected under 3.2.2 and approved under 3.2.2.2

3.2.4 Select a procedure for transferring the data obtained under 3.2.3 to the form approved under 3.2.1.5

3.2.4.1 Determine possible procedures

3.2.4.1.1 Investigate procedures used in similar systems

3.2.4.1.1.1 Arrange for and make observations of similar systems

3.2.4.1.1.2 Obtain information and suggestions from personnel involved in the operation of similar systems

3.2.4.1.2 Obtain suggestions from specialists

3.2.4.1.3 Make a cost/effectiveness analysis of the procedures

3.2.4.1.3.1 Use the procedure outlined under 3.2.1.2 through 3.2.1.3

3.2.4.1.4 I.S.E.C. makes cost/effectiveness trade-offs and selects the procedures

3.2.5 Obtain approval from I.S.E.C. to use the procedure

3.2.6 Implement the selected procedure

4.0 Select a system for serving clients

4.1 Select a method for clients to request data concerning resources

4.1.1 Identify possible methods for clients to request data

4.1.1.1 Determine what methods have been used previously

4.1.1.2 Elicit suggestions from County Office staff

4.1.1.3 Obtain suggestions from specialists

4.1.2 Make a cost/effectiveness analysis of identified methods

4.1.2.1 Use the procedure outlined under 1.1.1.3.1.2.1.1 through 1.1.1.3.1.2.2

4.1.3 I.S.E.C. makes cost/effectiveness trade-offs and selects the method

4.1.4 Obtain approval from I.S.E.C. to use the selected method

4.1.5 Implement the selected method

4.2 Select a procedure for processing and responding to client requests

4.2.1 Determine possible procedures

4.2.1.1 Use the procedure outlined under 3.2.4.1.1 through 3.2.4.1.2

4.2.2 Make a cost/effectiveness analysis of the procedures identified

4.2.2.1 Use the procedure outlined under 3.2.1.2 through 3.2.1.3

4.2.3 Obtain approval from I.S.E.C. to use the selected procedure

4.2.4 Implement the selected procedure

5.0 Select a system for evaluation and up-dating

5.1 Select a method to be used by client personnel for evaluation of consultant resources

5.1.1 Identify available methods for evaluation of resources by clients

5.1.1.1 Identify methods previously used

5.1.1.2 Obtain suggestions from evaluation specialists

5.1.2 Make a cost/effectiveness analysis of the methods identified

5.1.2.1 Calculate total cost of implementation for each method

5.1.2.2 Determine relative effectiveness of each method

5.1.2.2.1 For each method determine relative conformity to following criteria

5.1.2.2.1.1 Clear definition of objectives

5.1.2.2.1.2 Statement of objectives in terms of terminal performance specifications

5.1.2.2.1.3 Establish standards for quantity and quality of achievement of terminal performance specifications

5.1.2.2.1.4 Available means of measurement of terminal performance

5.1.2.2.1.5 Available means of recording and reporting results of measurement of terminal performance

5.1.2.3 Make a statement of total cost and relative effectiveness for each method

5.1.3 I.S.E.C. makes cost/effectiveness trade-offs and selects method

5.1.4 Obtain approval from I.S.E.C. to use the selected method

5.1.5 Implement the selected method

5.2 Select a method to be used by consultant resources to evaluate consultation situation and effectiveness of service

5.2.1 Use the procedure outlined under 5.1 through 5.1.3

5.2.2 Obtain approval from I.S.E.C. to use the selected method

5.2.3 Implement the selected method

5.3 Select a method for processing evaluation responses from clients and consultants

5.3.1 Determine possible procedures

5.3.1.1 Use the procedure outlined under 3.2.4.1.1 through 3.2.4.1.2

5.3.2 Make a cost/effectiveness analysis of the procedures

5.3.2.1 Use the procedure outlined under 3.2.1.2 through 3.2.1.3

5.3.3 Obtain approval from I.S.E.C. to use the selected procedure

5.3.4 Implement the selected procedure

5.4 Select a method to add to or modify stored data

5.4.1 Determine possible methods

5.4.1.1 Use the procedure outlined under 3.2.4.1.1 through 3.2.4.1.2

5.4.2 Make a cost/effectiveness analysis of the methods identified

5.4.2.1 Use the procedure outlined under 3.2.1.2 through 3.2.1.3

5.4.3 Obtain approval from I.S.E.C. to use the selected method

5.4.4 Implement the selected method

EXHIBIT C

PROPOSED PLAN FOR INVOLVING BOARD, CABINET, AND STAFF IN THE STUDY AND DEVELOPMENT OF PROPOSALS FOR THE IMPLEMENTATION OF RECOMMENDATIONS OF THE COUNTY OFFICE STUDY

MISSION:

This plan will provide a procedure by which members of the County Board of Education, the Cabinet, and the staff of the office will be involved in the study and consideration of, and the development of proposals for the implementation of, the recommendations of the office study.

LIMITATIONS:

1. The plan must provide for maximum intercommunication between all members of the County Board of Education, the Cabinet, and the staff of the office. There must be provision for questions and answers, for suggestions and countersuggestions, for full and free discussion, for the presentation of arguments and evidence.
2. The plan must be so structured that every member of the County Board, the Cabinet, and the staff has an opportunity, and is made aware of the opportunity, to participate in the study of, the consideration of, and discussion about the recommendations, and in the formulation of proposals concerning implementation of the recommendations.
3. The plan must provide for discussion groups which are small enough so that each individual participant is assured that he can be heard, can be understood, and can have influence upon

decisions of the group.

4. The plan must provide for a random selection of the members of the small discussion groups so that all points of view of the various organizations, interest groups, existing divisions, and individuals will have an equal chance of being represented in the small discussion groups.

5. The plan must provide for the study and consideration of all of the recommendations in the report of the study by all of the small discussion groups.

6. The plan must provide a procedure whereby any individual or group who has a special interest will be assured of an opportunity to present all available arguments and evidence in support of the point of view of that special interest.

CONSTRAINTS:

1. The plan must provide for the completion of the total task of study, consideration, and submission of proposals for implementation by January 16, 1967.

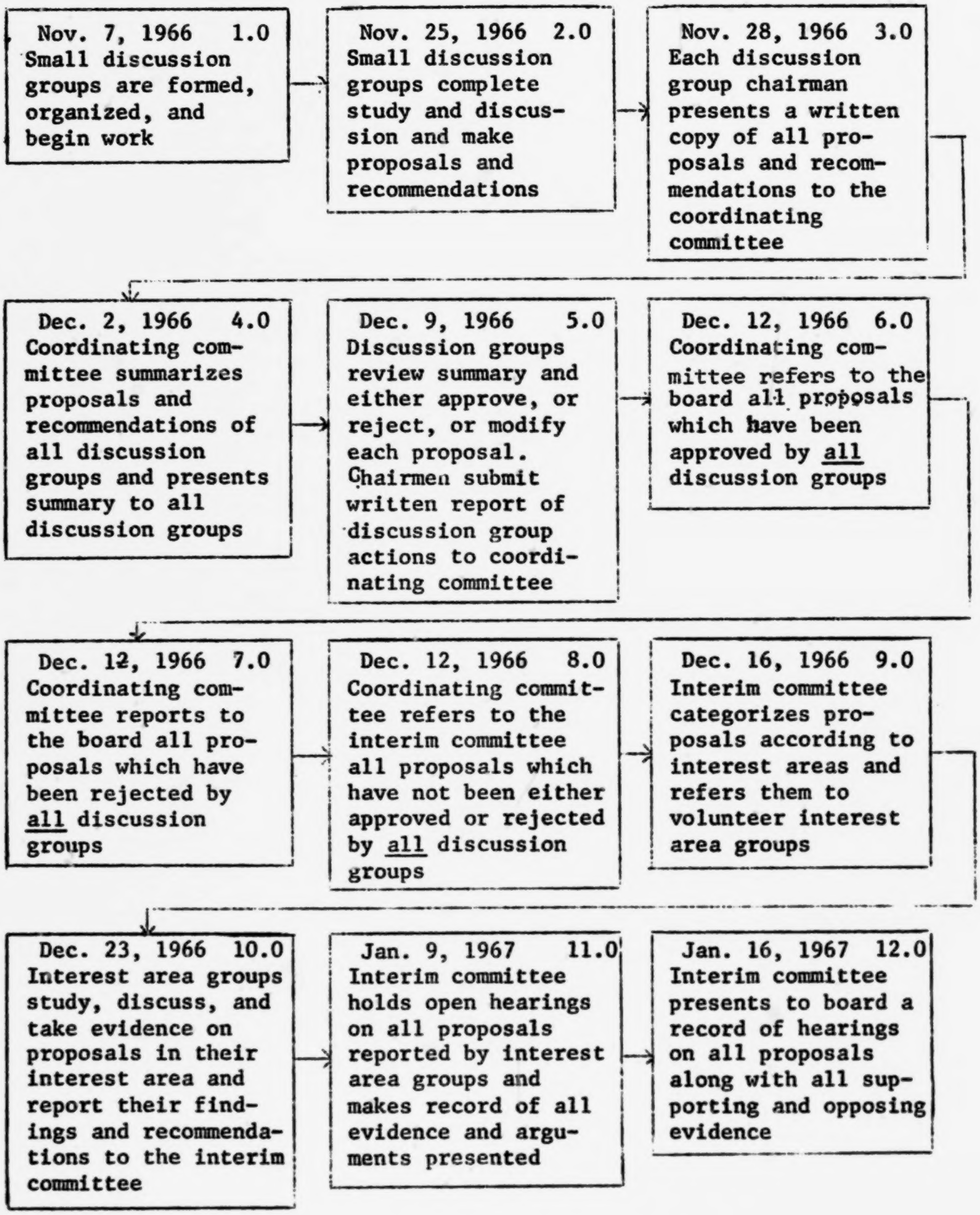
2. The plan must be workable within the very restricted time limitations available to the personnel involved.

3. The plan must be flexible enough to operate effectively even when higher priority activities encroach upon its time schedule.

4. The cost of the operation of the plan must be within the present budgetary provisions of the office.

5. The plan must operate without the employment of additional personnel to carry it out.

MISSION PROFILE OF SIROS PLAN



Nov. 7, 1966 1.0
Small discussion groups are formed, organized, and begin work

Nov. 25, 1966 2.0
Small discussion groups complete study and discussion and make proposals and recommendations

Nov. 28, 1966 3.0
Each discussion group chairman presents a written copy of all proposals and recommendations to the coordinating committee

Dec. 2, 1966 4.0
Coordinating committee summarizes proposals and recommendations of all discussion groups and presents summary to all discussion groups

Dec. 9, 1966 5.0
Discussion groups review summary and either approve, or reject, or modify each proposal. Chairmen submit written report of discussion group actions to coordinating committee

Dec. 12, 1966 6.0
Coordinating committee refers to the board all proposals which have been approved by all discussion groups

Dec. 12, 1966 7.0
Coordinating committee reports to the board all proposals which have been rejected by all discussion groups

Dec. 12, 1966 8.0
Coordinating committee refers to the interim committee all proposals which have not been either approved or rejected by all discussion groups

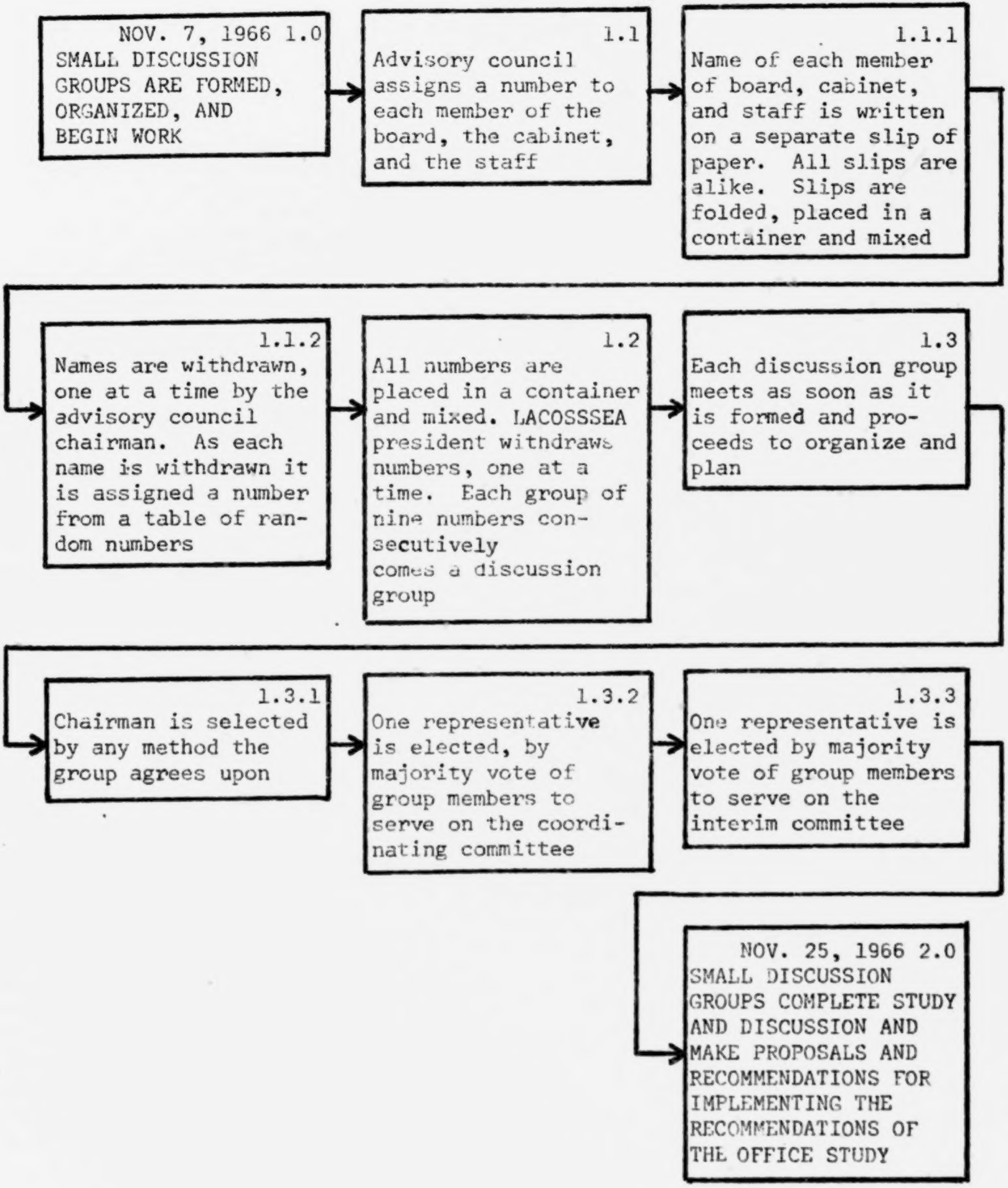
Dec. 16, 1966 9.0
Interim committee categorizes proposals according to interest areas and refers them to volunteer interest area groups

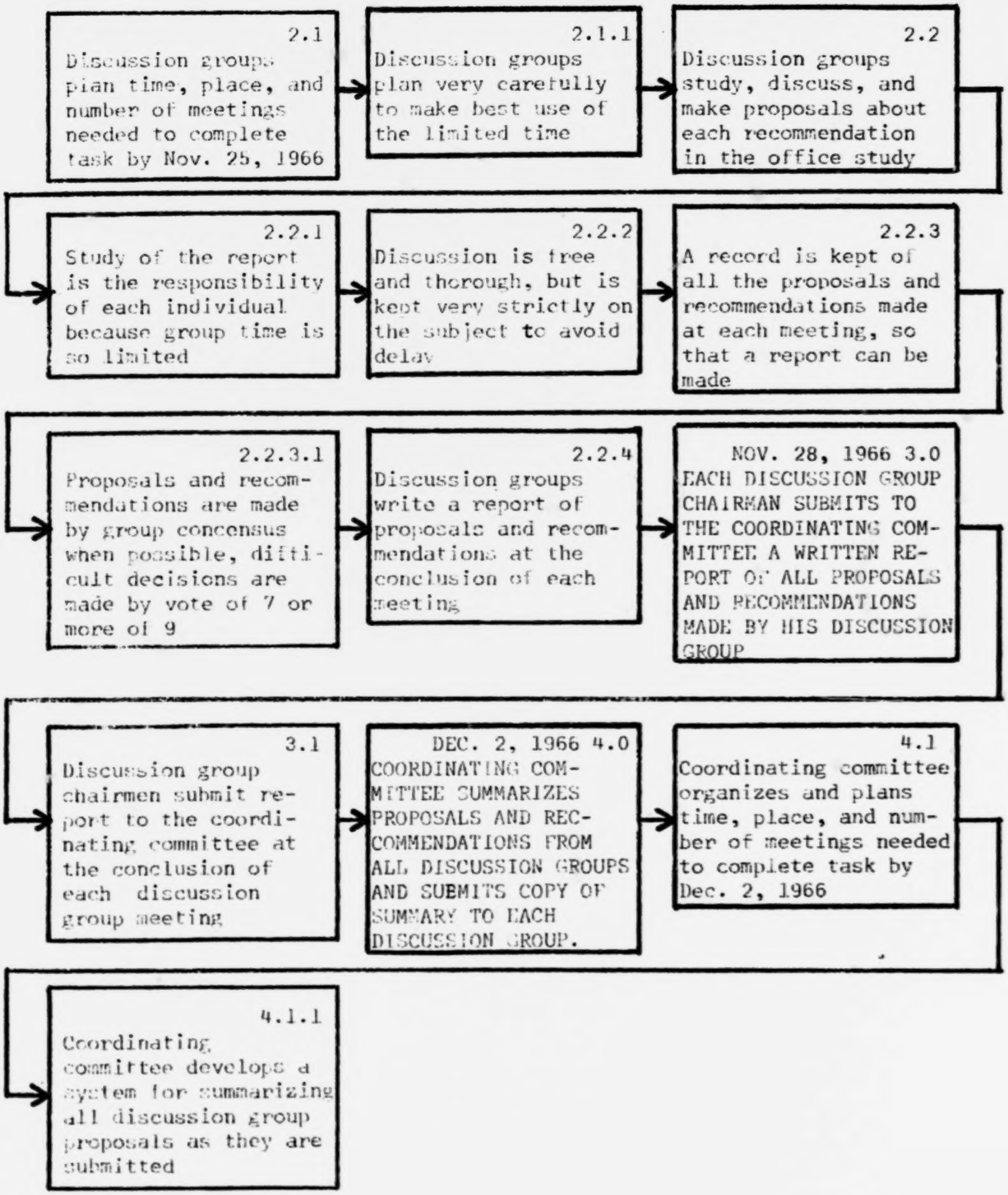
Dec. 23, 1966 10.0
Interest area groups study, discuss, and take evidence on proposals in their interest area and report their findings and recommendations to the interim committee

Jan. 9, 1967 11.0
Interim committee holds open hearings on all proposals reported by interest area groups and makes record of all evidence and arguments presented

Jan. 16, 1967 12.0
Interim committee presents to board a record of hearings on all proposals along with all supporting and opposing evidence

FUNCTIONAL ANALYSIS OF SIROS PLAN


NOV. 7, 1966 1.0 SMALL DISCUSSION GROUPS ARE FORMED, ORGANIZED, AND BEGIN WORK
1.1 Advisory council assigns a number to each member of the board, the cabinet, and the staff
1.1.1 Name of each member of board, cabinet, and staff is written on a separate slip of paper. All slips are alike. Slips are folded, placed in a container and mixed
1.1.2 Names are withdrawn, one at a time by the advisory council chairman. As each name is withdrawn it is assigned a number from a table of random numbers
1.2 All numbers are placed in a container and mixed. LACOSSSEA president withdraws numbers, one at a time. Each group of nine numbers consecutively comes a discussion group
1.3 Each discussion group meets as soon as it is formed and proceeds to organize and plan
1.3.1 Chairman is selected by any method the group agrees upon
1.3.2 One representative is elected, by majority vote of group members to serve on the coordinating committee
1.3.3 One representative is elected by majority vote of group members to serve on the interim committee
NOV. 25, 1966 2.0 SMALL DISCUSSION GROUPS COMPLETE STUDY AND DISCUSSION AND MAKE PROPOSALS AND RECOMMENDATIONS FOR IMPLEMENTING THE RECOMMENDATIONS OF THE OFFICE STUDY



2.1
Discussion groups plan time, place, and number of meetings needed to complete task by Nov. 25, 1966

2.1.1
Discussion groups plan very carefully to make best use of the limited time

2.2
Discussion groups study, discuss, and make proposals about each recommendation in the office study

2.2.1
Study of the report is the responsibility of each individual because group time is so limited

2.2.2
Discussion is free and thorough, but is kept very strictly on the subject to avoid delay

2.2.3
A record is kept of all the proposals and recommendations made at each meeting, so that a report can be made

2.2.3.1
Proposals and recommendations are made by group concensus when possible, difficult decisions are made by vote of 7 or more of 9

2.2.4
Discussion groups write a report of proposals and recommendations at the conclusion of each meeting

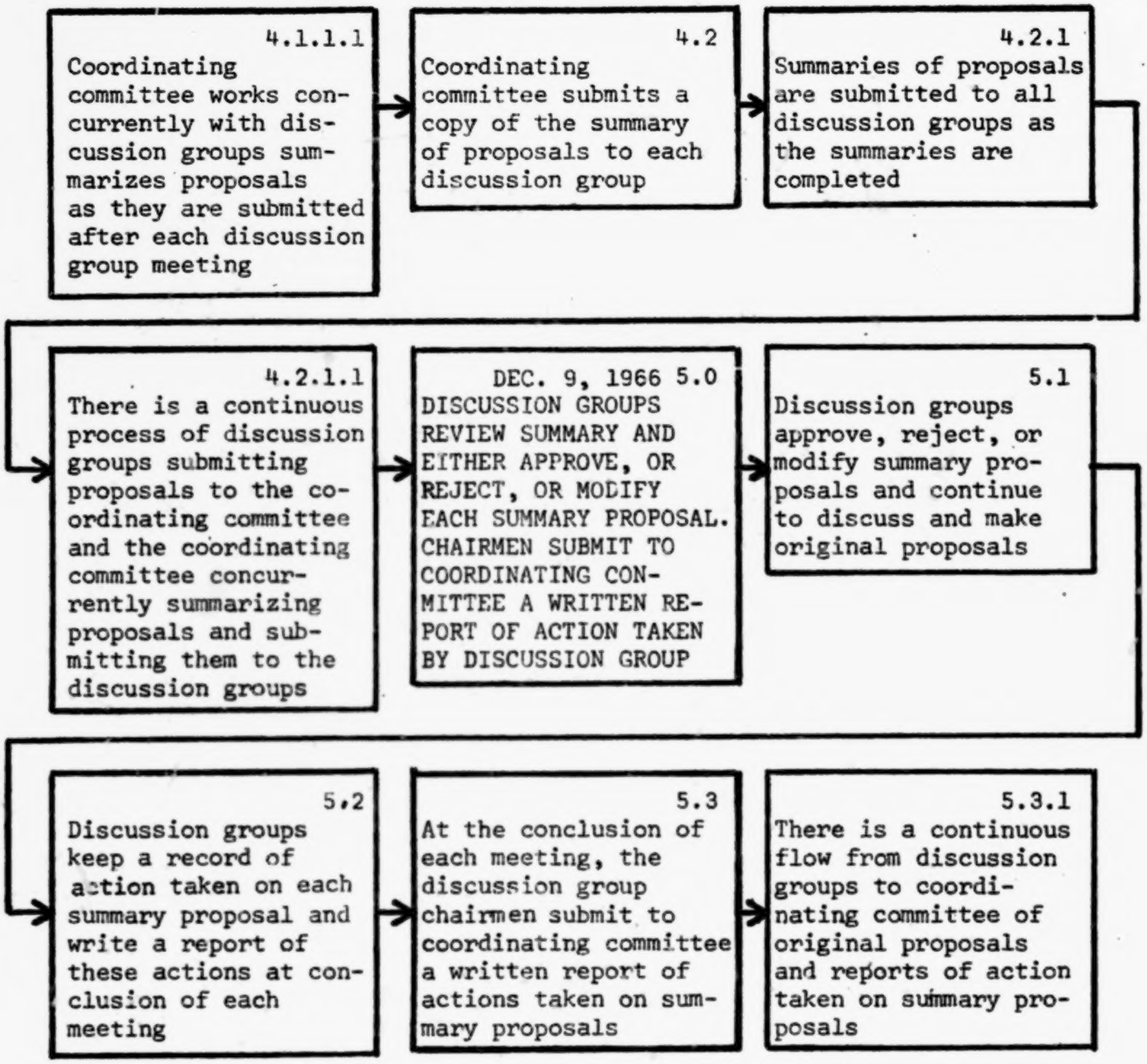
NOV. 28, 1966 3.0
EACH DISCUSSION GROUP CHAIRMAN SUBMITS TO THE COORDINATING COMMITTEE A WRITTEN REPORT OF ALL PROPOSALS AND RECOMMENDATIONS MADE BY HIS DISCUSSION GROUP

3.1
Discussion group chairmen submit report to the coordinating committee at the conclusion of each discussion group meeting

DEC. 2, 1966 4.0
COORDINATING COMMITTEE SUMMARIZES PROPOSALS AND RECOMMENDATIONS FROM ALL DISCUSSION GROUPS AND SUBMITS COPY OF SUMMARY TO EACH DISCUSSION GROUP.

4.1
Coordinating committee organizes and plans time, place, and number of meetings needed to complete task by Dec. 2, 1966

4.1.1
Coordinating committee develops a system for summarizing all discussion group proposals as they are submitted



4.1.1.1
Coordinating committee works concurrently with discussion groups summarizes proposals as they are submitted after each discussion group meeting

4.2
Coordinating committee submits a copy of the summary of proposals to each discussion group

4.2.1
Summaries of proposals are submitted to all discussion groups as the summaries are completed

4.2.1.1
There is a continuous process of discussion groups submitting proposals to the coordinating committee and the coordinating committee concurrently summarizing proposals and submitting them to the discussion groups

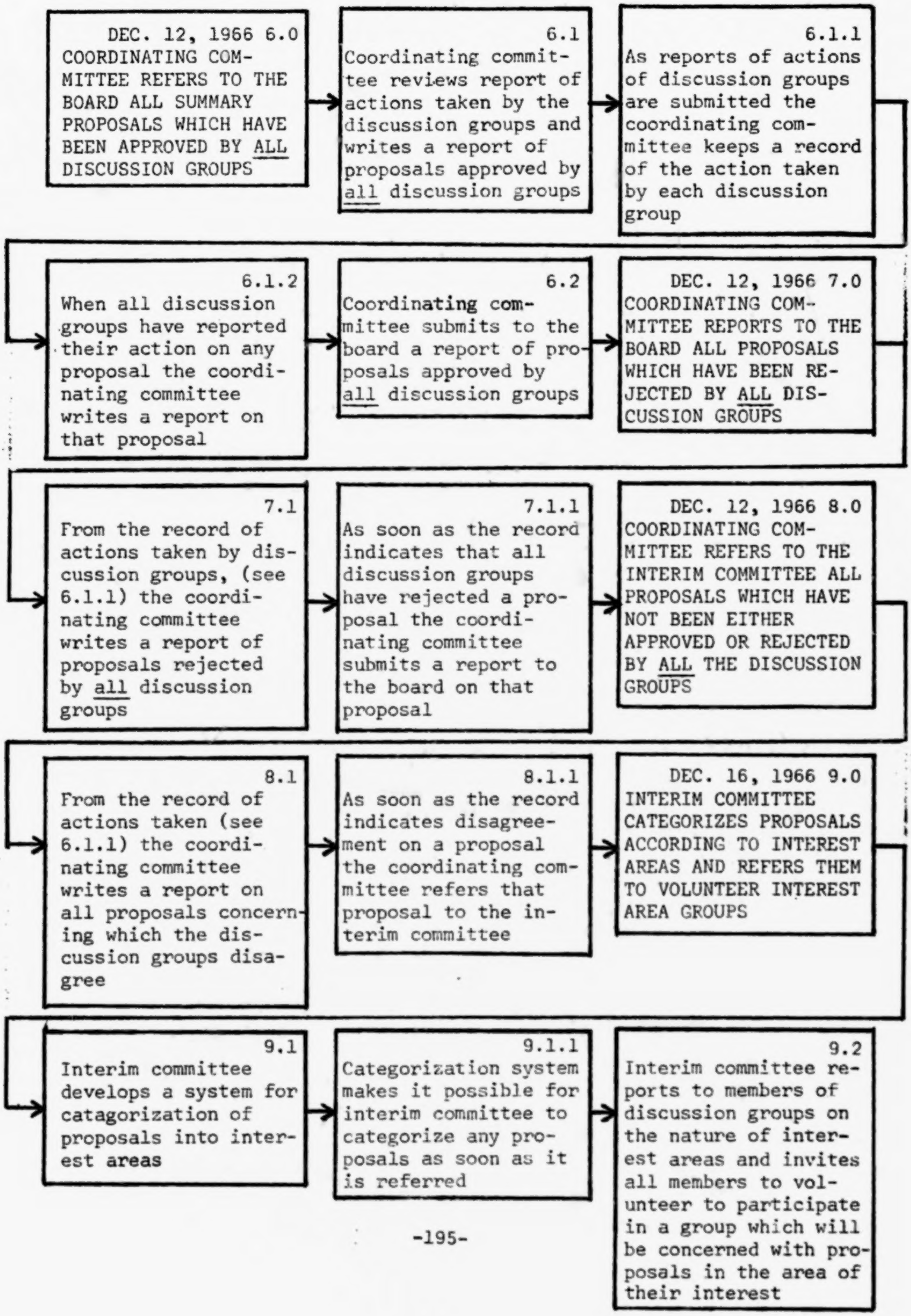
DEC. 9, 1966 5.0
DISCUSSION GROUPS REVIEW SUMMARY AND EITHER APPROVE, OR REJECT, OR MODIFY EACH SUMMARY PROPOSAL. CHAIRMEN SUBMIT TO COORDINATING COMMITTEE A WRITTEN REPORT OF ACTION TAKEN BY DISCUSSION GROUP

5.1
Discussion groups approve, reject, or modify summary proposals and continue to discuss and make original proposals

5.2
Discussion groups keep a record of action taken on each summary proposal and write a report of these actions at conclusion of each meeting

5.3
At the conclusion of each meeting, the discussion group chairmen submit to coordinating committee a written report of actions taken on summary proposals

5.3.1
There is a continuous flow from discussion groups to coordinating committee of original proposals and reports of action taken on summary proposals



DEC. 12, 1966 6.0
COORDINATING COMMITTEE REFERS TO THE BOARD ALL SUMMARY PROPOSALS WHICH HAVE BEEN APPROVED BY ALL DISCUSSION GROUPS

6.1
Coordinating committee reviews report of actions taken by the discussion groups and writes a report of proposals approved by all discussion groups

6.1.1
As reports of actions of discussion groups are submitted the coordinating committee keeps a record of the action taken by each discussion group

6.1.2
When all discussion groups have reported their action on any proposal the coordinating committee writes a report on that proposal

6.2
Coordinating committee submits to the board a report of proposals approved by all discussion groups

DEC. 12, 1966 7.0
COORDINATING COMMITTEE REPORTS TO THE BOARD ALL PROPOSALS WHICH HAVE BEEN REJECTED BY ALL DISCUSSION GROUPS

7.1
From the record of actions taken by discussion groups, (see 6.1.1) the coordinating committee writes a report of proposals rejected by all discussion groups

7.1.1
As soon as the record indicates that all discussion groups have rejected a proposal the coordinating committee submits a report to the board on that proposal

DEC. 12, 1966 8.0
COORDINATING COMMITTEE REFERS TO THE INTERIM COMMITTEE ALL PROPOSALS WHICH HAVE NOT BEEN EITHER APPROVED OR REJECTED BY ALL THE DISCUSSION GROUPS

8.1
From the record of actions taken (see 6.1.1) the coordinating committee writes a report on all proposals concerning which the discussion groups disagree

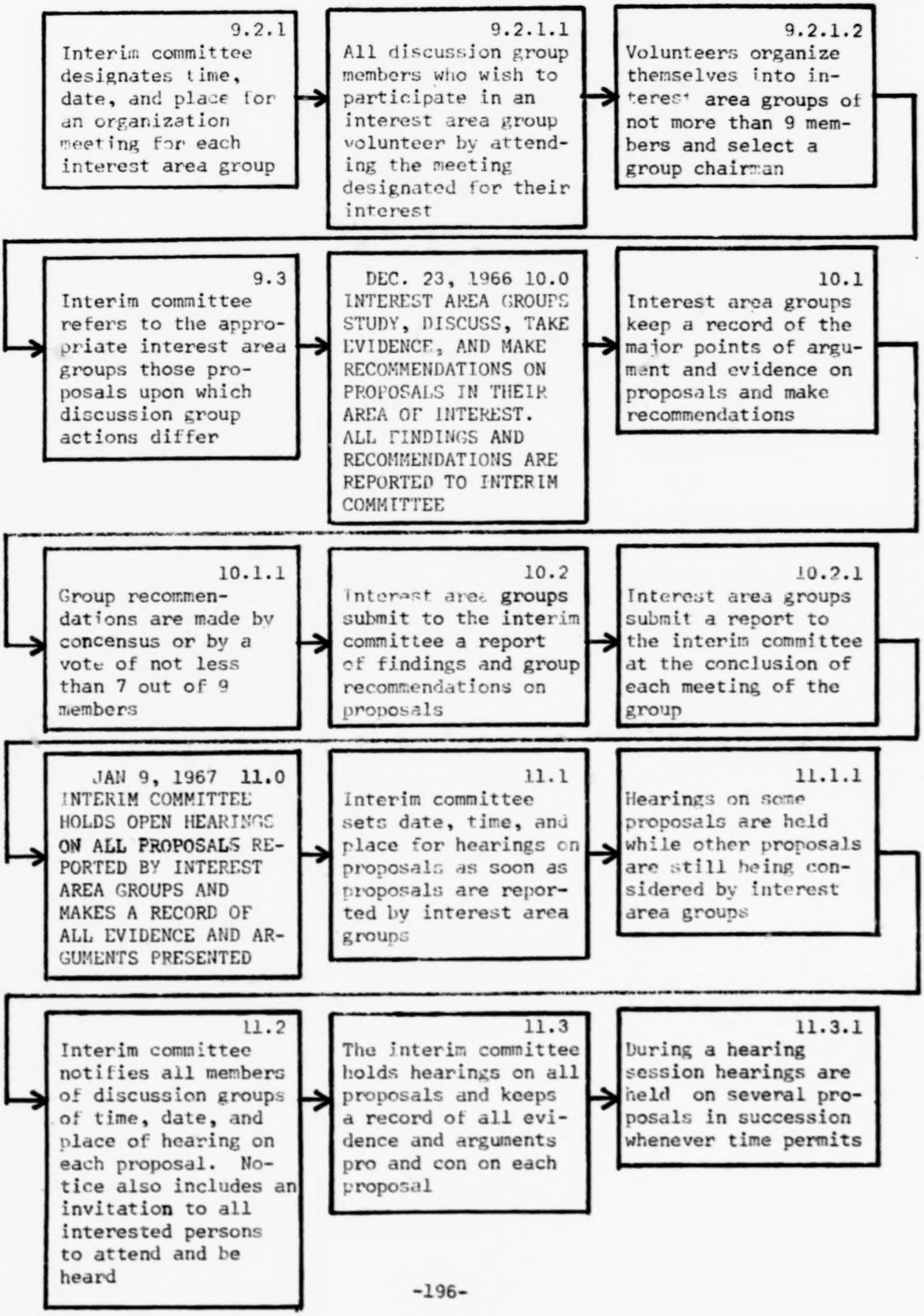
8.1.1
As soon as the record indicates disagreement on a proposal the coordinating committee refers that proposal to the interim committee

DEC. 16, 1966 9.0
INTERIM COMMITTEE CATEGORIZES PROPOSALS ACCORDING TO INTEREST AREAS AND REFERS THEM TO VOLUNTEER INTEREST AREA GROUPS

9.1
Interim committee develops a system for catagorization of proposals into interest areas

9.1.1
Categorization system makes it possible for interim committee to categorize any proposals as soon as it is referred

9.2
Interim committee reports to members of discussion groups on the nature of interest areas and invites all members to volunteer to participate in a group which will be concerned with proposals in the area of their interest



9.2.1
Interim committee designates time, date, and place for an organization meeting for each interest area group

9.2.1.1
All discussion group members who wish to participate in an interest area group volunteer by attending the meeting designated for their interest

9.2.1.2
Volunteers organize themselves into interest area groups of not more than 9 members and select a group chairman

9.3
Interim committee refers to the appropriate interest area groups those proposals upon which discussion group actions differ

DEC. 23, 1966 10.0
INTEREST AREA GROUPS STUDY, DISCUSS, TAKE EVIDENCE, AND MAKE RECOMMENDATIONS ON PROPOSALS IN THEIR AREA OF INTEREST. ALL FINDINGS AND RECOMMENDATIONS ARE REPORTED TO INTERIM COMMITTEE

10.1
Interest area groups keep a record of the major points of argument and evidence on proposals and make recommendations

10.1.1
Group recommendations are made by concensus or by a vote of not less than 7 out of 9 members

10.2
Interest area groups submit to the interim committee a report of findings and group recommendations on proposals

10.2.1
Interest area groups submit a report to the interim committee at the conclusion of each meeting of the group

JAN 9, 1967 **11.0**
INTERIM COMMITTEE HOLDS OPEN HEARINGS ON ALL PROPOSALS REPORTED BY INTEREST AREA GROUPS AND MAKES A RECORD OF ALL EVIDENCE AND ARGUMENTS PRESENTED

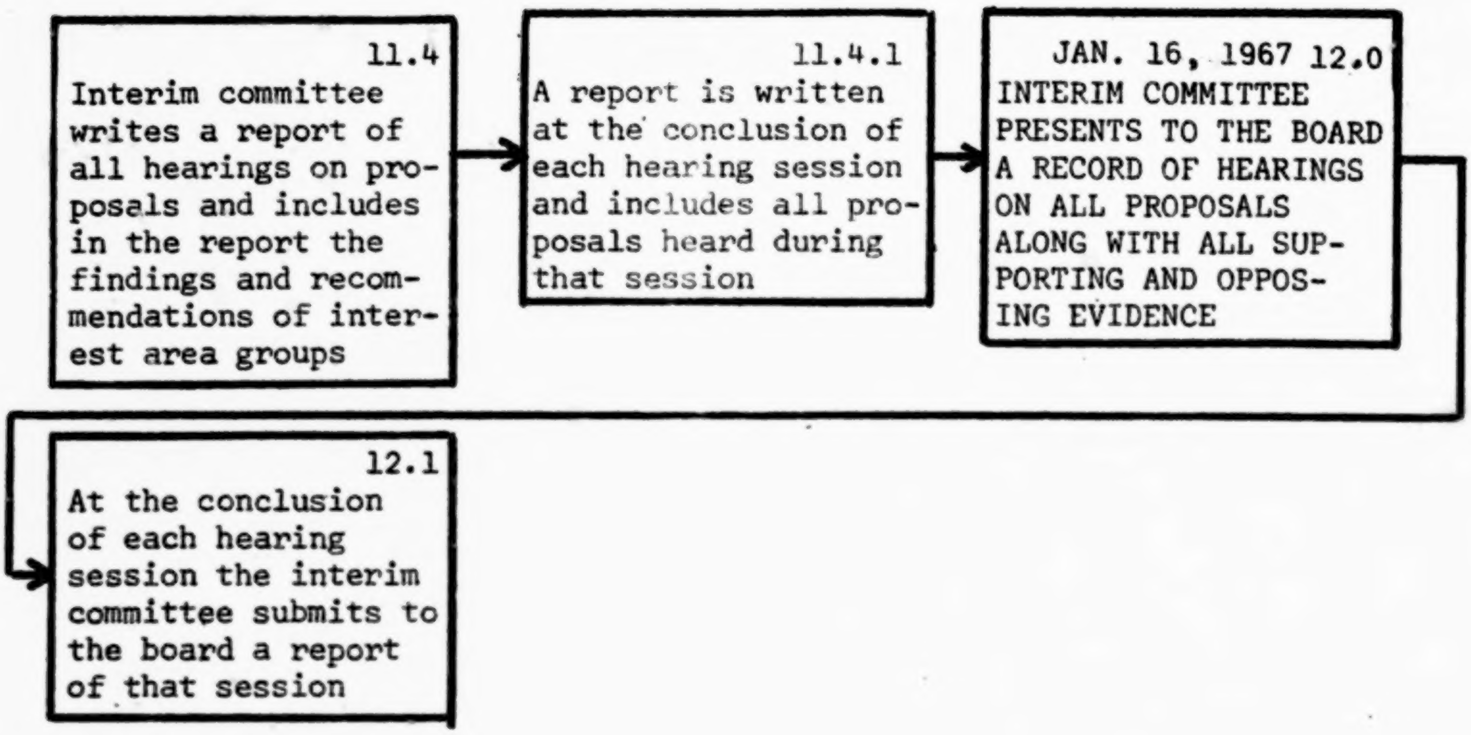
11.1
Interim committee sets date, time, and place for hearings on proposals as soon as proposals are reported by interest area groups

11.1.1
Hearings on some proposals are held while other proposals are still being considered by interest area groups

11.2
Interim committee notifies all members of discussion groups of time, date, and place of hearing on each proposal. Notice also includes an invitation to all interested persons to attend and be heard

11.3
The interim committee holds hearings on all proposals and keeps a record of all evidence and arguments pro and con on each proposal

11.3.1
During a hearing session hearings are held on several proposals in succession whenever time permits


11.4
Interim committee writes a report of all hearings on proposals and includes in the report the findings and recommendations of interest area groups
11.4.1
A report is written at the conclusion of each hearing session and includes all proposals heard during that session
JAN. 16, 1967 12.0
INTERIM COMMITTEE PRESENTS TO THE BOARD A RECORD OF HEARINGS ON ALL PROPOSALS ALONG WITH ALL SUPPORTING AND OPPOSING EVIDENCE
12.1
At the conclusion of each hearing session the interim committee submits to the board a report of that session

A SET OF GUIDELINES FOR DYNAMIC PLANNED CHANGE FOR COUNTY SUPERINTENDENTS OF SCHOOLS

William J. Caven
Director of Administrative Services
Butte County Superintendent of Schools

Rationale for Designing a Set of Guidelines for Dynamic Planned Change in Offices of County Superintendents in Class 4, 5 and 6 Counties

The rationale for writing a proposal to design a set of guidelines for dynamic planned change in the offices of county superintendents of schools in the Class 4, 5 and 6 counties is relatively simple. Our concept of the office of the county superintendent is that is it an operating agency with certain well-defined functions. As such, its job is to perform those functions. Because of stringent budgeting regulations, state financing of superintendents' offices limits staffing patterns; planning for change becomes a part-time responsibility and, as a result, it is not well done. In fact, most planning takes place in county offices as a result of reaction to legislative mandates, state board of education decisions, state department of education directives or excessive pressure from school districts for specific programs.

The limitations on staffing patterns generally preclude planning for change in any orderly systematic way. The Butte County Office, therefore, perceived that it would be possible to design a set of guidelines which could be used by superintendents to plan for change within their own framework of operation. These guidelines would be developed through a functional analysis procedure, and would make use of data on needs assessment supplied from Title III evaluation and planning centers as well as from various documents outlining the changing role of the intermediate unit in California.

The idea came to us very slowly. At the PEP training institute in 1966 many representatives of county offices were working on some method of evaluating staff activities and performance. Our county was one of those involved in this activity. At the same time, county superintendents were seriously concerned about the impact of the Arthur B. Little Company studies and the County Superintendents' "Committee of Ten" study which was not yet in final form.

In August of 1966 our staff met for two days to discuss plans for the 1966-67 school year and to begin an analysis of county office functions which would be changing over the course of time. The staff was divided into committees to look at the inherent problems of current functions and to consider future directions. The committee upon which the author served was to prepare a functional flow diagram of present functions, evaluate them in terms of customer response, review documents on management change, and prepare recommendations for changing the organizational patterns of the office that would include changing staff assignments and provide for continuous assessment of needs for change.

As the committee began to work, it was obvious that the personnel was unable to devote the time necessary to carry out this project because of assignments they already had. Investigation also revealed that there were not enough funds available to do the job either by contracting for consultant help or by hiring additional staff. Further investigation of the ten county superintendents' offices in the Northern California P.A.C.E. Center geographical area revealed that all the superintendents wished to make such a study, but that only one, a Class 4 county, had started to do anything about it and had run into the same difficulties we had.

From these investigations the idea occurred to the author that Class 4, 5 and 6 counties might be different from counties in larger, more populated areas because of economy, geography and number of people served. Perhaps, also, the problems affecting schools in rural counties were different from those of urban counties. Furthermore, because of small staffs, and perhaps less competent people or at least a smaller number of highly skilled personnel, it would be feasible to develop a set of guidelines cooperatively which the superintendents could then use with existing staffs to accomplish planned change the same way Class 1, 2 and 3 counties or large school districts can.

Our office, therefore, approached the state Title III ESEA personnel in Sacramento to ascertain whether the idea was feasible, whether anyone elso had proposed a similar program and whether we could secure a priority ranking for this type of project from the state. The answers were: yes, it is feasible for the study although implementation of the results should be a state function; no, no one else had proposed a similar idea; yes, the state would place a priority ranking on the project if we would include all the Class 4, 5 and 6 counties in the proposal. Added to this was a comment to the effect that Butte County could indeed be the county which could perform the study without seriously upsetting the county superintendents in the other counties.

From there it was relatively easy, with the help of the Litton Industries consultants, the P.A.C.E. Center staff, state personnel and an outside review team, to develop a proposal to make the study.

The results of the proposal were as follows:

1. The state review team approved it.

2. The state gave it a priority ranking.

3. The Federal government did not fund it because there were studies funded that were similar in nature.

4. State review analysis indicated that the difference in concept between P.A.C.E. Center functions in planning for change and county superintendents' functions as operating intermediate units in our state educational system was not apparent to Washington reviewers. The state analysis also showed that it would be desirable to include in the document the agreement of the 58 superintendents to participate in the project. This omission was a recognizable weakness which was not remedied because of a lack of time in preparing the project.

5. Appended to this report is the analysis of the study as we saw it at the time the proposal was written.

APPENDED ANALYSIS

MISSION STATEMENT: To design a set of guidelines for the rural county superintendents of schools in California which will provide the county superintendent with the necessary data upon which to adapt or adopt the elements of dynamic planned change including need assessment and priority ranking capability to their existing management models.

1.0 Assess Student Needs

  1.1 Collect need data from the Northern California PACE Center

    1.1.1 List ten Northern Counties

    1.1.2 List groups with needs by counties

      1.1.2.1 Pre-school
      1.1.2.2 School age children in school
      1.1.2.3 School age children not in school
      1.1.2.4 Adults

    1.1.3 List kinds of needs by counties

      1.1.3.1 Educational
      1.1.3.2 Cultural
      1.1.3.3 Health
      1.1.3.4 Other

    1.1.4 Collect data

  1.2 Collect needs data from other relevant PACE Centers

    1.2.1 List centers

    1.2.2 List counties

    1.2.3 List groups with needs by counties

    1.2.4 List kinds of needs by counties

    1.2.5 Collect data

  1.3 Analyze Data

    1.3.1 List similar needs by counties

1.3.2 List different needs by counties

1.3.2.1 Have data processed on computer

1.3.3 Set criteria for ranking

1.3.4 Place needs in priority rank

1.3.5 Receive suggestions from all concerned

1.3.6 Revise priority ranking

1.4 Convert Data to Reportable Form

1.4.1 Convert data by groups by counties

1.4.2 Convert data by kinds of needs by counties

1.4.3 Convert data by similarities

1.4.4 Convert data by differences

1.4.5 Convert data by priorities by counties

1.5 Report to all concerned

2.0 Determine the Existing Management Models

2.1 Determine elements within the models

2.1.1 Determine legal and financial elements

2.1.2 Determine staff functions by counties

2.1.3 Determine staff qualifications by job families

2.1.4 Determine financial resources

2.1.4.1 State
2.1.4.2 Local
2.1.4.3 Federal
2.1.4.4 Other

2.2 Determine elements of model which tie into other management systems

2.2.1 List Systems

        - 2.2.1.1 State Education
        - 2.2.1.2 Local Education
        - 2.2.1.3 Federal Education
        - 2.2.1.4 Other Education
        - 2.2.1.5 Other State Systems
        - 2.2.1.6 Other Local Systems
        - 2.2.1.7 Other Federal Systems
        - 2.2.1.8 Other Community Systems

    - 2.2.2 Show Relationships

        - 2.2.2.1 State Education Systems
        - 2.2.2.2 Local Education Systems
        - 2.2.2.3 Federal Education Systems
        - 2.2.2.4 Other Education Systems
        - 2.2.2.5 Other State Systems
        - 2.2.2.6 Other Local Systems
        - 2.2.2.7 Other Federal Systems
        - 2.2.2.8 Other Community Systems

  - 2.3 Analyze data

    - 2.3.1 Of existing models by counties

    - 2.3.2 Of tie-in with other management models

    - 2.3.3 Secure suggestions and select relevant ones

    - 2.3.4 Compare similarities and differences

  - 2.4 Put data analysis into readable form

  - 2.5 Secure suggestions from all concerned

  - 2.6 Revise and compile data in readable form

- 3.0 Determine changing functions in the literature

  - 3.1 Identify changing functions

    - 3.1.1 List documents

        - 3.1.1.1 Arthur D. Little Company
        - 3.1.1.2 County Superintendents Association Committee of Ten
        - 3.1.1.3 Los Angeles County study
        - 3.1.1.4 Doctoral dissertation by Glenn Hoffman
        - 3.1.1.5 20 Northern California County study by David Usland

        - 3.1.2 Gather data
        - 3.1.3 List other sources
            - 3.1.3.1 State Legislature
            - 3.1.3.2 State Board of Education
            - 3.1.3.3 School District Reorganization
            - 3.1.3.4 State Department of Education
            - 3.1.3.5 Junior Colleges
            - 3.1.3.6 State Colleges and Universities
            - 3.1.3.7 Federal Government
            - 3.1.3.8 PACE Centers
            - 3.1.3.9 Community Needs
            - 3.1.3.10 School Needs
    - 3.2 Convert data to reportable form
    - 3.3 Secure suggestions from staff and others
    - 3.4 Identify points of stress
    - 3.5 Identify new and changing resources
    - 3.6 Identify qualifications for changing functions
    - 3.7 Secure responses from staff and others
    - 3.8 Revise

4.0 Compare changing student needs and changing functions in literature

- 4.1 Classify student needs
- 4.2 Classify changing functions in literature
- 4.3 Determine areas of differences and similarities
- 4.4 Secure suggestions from all concerned
- 4.5 Put data into reportable form

5.0 Rank Priorities

- 5.1 Rank priorities of student needs
- 5.2 Rank priorities of changes in literature
- 5.3 Rank priorities of resources

- 5.4 Weight priorities in order of importance
- 5.5 Secure suggestions from staffs and others
- 5.6 Revise and convert to reportable form

6.0 Design sets of guidelines for planning change

- 6.1 Design guidelines
- 6.2 Secure suggestions from staff and others
- 6.3 Compare with other guidelines
- 6.4 Revise and put into reportable form

7.0 Determine cost effectiveness of proposed sets of guidelines

- 7.1 Determine costs of implementing guidelines
- 7.2 Compare with priority of resources
- 7.3 Convert data to readable forms

8.0 Select most feasible guidelines

- 8.1 Make decisions on plan to follow using needs, cost, resources analysis
- 8.2 Secure responses from staffs and others
- 8.3 Secure State approval
- 8.4 Convert data to readable form

9.0 Disseminate to all concerned

- 9.1 Design publication of report
- 9.2 Secure help for revision
- 9.3 Publish report
- 9.4 Send to all agencies concerned

The immediate objective is accomplished at this point. There is a further objective to be reached. The plan must be tested and implemented and revised continuously. The outline steps to start the second phase are as follows:

10.0 Implement and revise through planned change

- 10.1 Implement and test plan
- 10.2 Plan changes to enhance model and meet continuing change requirements
- 10.3 Secure responses
- 10.4 Revise and retest

SYSTEM ANALYSIS
# of a
STUDENT NEED ASSESSMENT PROGRAM

Donald H. Kase
North Bay PACE Center

MISSION OF THE CENTER

To identify unmet educational and cultural needs of 165,000 students in Grades K-12 in the counties of Napa, Marin, Solano, and Sonoma; to determine the relative priorities of these needs; to increase community and regional awareness of identified high-priority needs; to identify local, state, and national resources that might be used to assist in fulfilling these needs; to develop innovative and/or exemplary educational programs to meet the high priority student needs; to facilitate program implementation; and to evaluate the total effectiveness of the Center in fulfilling the Mission. This Mission is to be completed within a 12-month period ending June 30, 1967.

MISSION LIMITS

1. January 1, 1967, deadline for identifying at least two high priority regional needs and for developing a comprehensive system analysis designed to attain mission objectives; the two needs may be identified by an informal analysis or mandated by advisory committees.
2. Approximately $100,000 available through January 1, 1967; $149,000 total for the period July 1, 1966, to June 30, 1967.
3. It is 100% critical that at least two high priority needs be identified and that one program be submitted by district or county offices designed to meet one of these high priority needs.

4. California education code.
5. PACE Guidelines (U.S. Office of Education limits).
6. June 30, 1967, projects must be substantiated with need study data provided by the center.

MISSION CONSTRAINTS

1. Five professional staff with variable background.
2. Four clerical personnel.
3. Partially developed management system as outlined in project proposal.
4. California State Department of Education rules and guides.
5. PEP Training Program which requires an additional two weeks at Chapman College and/or Sacramento between August 1966 and July 1967.
6. Variable perceptions by county and district superintendents re functions and purposes of the Center.

SYSTEM ANALYSIS

[The numbering system used throughout is in the manner of system analysis]

1.0 Develop Planning Grant Proposal for PACE center -- Completed.

2.0 Develop Management Structure of the Center, including advisory structure -- Completed.

3.0 Develop Program Management of the Center -- Completed.

4.0 Identify Unmet Student Needs

4.1 Establish definitions.

4.1.1 Define "unmet need." Out working definition at this time is: Discrepancy between expected behavior of students by various societal categories, and the actual behavior of students.

4.1.2 Define "discrepancy." Two possible definitions have been considered:

(a) Objective, both statistical and behavioral, and

(b) Subjective, mainly opinion, prejudice, political pressure.

We have chosen definition (a), including both statistical and explicit/implicit behaviors of students.

4.1.3 Define "expected behavior."

4.1.3.1 Define "behavior." Behavior which is measurable in some form.

4.1.3.2 Define "expected." Statistical, e.g., rank order of frequencies of mention by a given societal group.

4.1.4 Define "actual behavior." Statistical, e. g., rank order of frequencies of measured behavior of students.

4.1.5 Define "societal categories." To be determined with the assistance of consultants. Our thinking at this point is to use initially those categories which have high visibility, e.g., occupational classifications, educational classifications, ethnic groupings, income levels, etc. Among the consultants will be city planning directors, political scientists, and economists, in addition to sociologists and other behavioral scientists.

4.2 Identify discrepancies between "expected" and "actual" behavior.

4.2.1 Determine "expected" behavior of students.

4.2.1.1 Determine Methodology

4.2.1.1.1 Determine information content

HOW IS 4.2.1.1.1 TO BE DONE?

EXAMPLE OF A GROSS TASK ANALYSIS for determining information content in 4.2.1.1.1

1. Make a standard list of sample open-ended questions to ask each societal category for probing. Use advisory committee members for first initial probing in order to involve them in what is going on.

2. Develop a trial structured questionnaire to be filled out by each societal category for additional probing. Use advisory committee members and school administrative personnel for first initial probe to identify most serious problems.

3. Interview 10-12 persons in societal categories (especially school administrators) with these sample questions and questionnaire, to obtain some feeling for significant content of goals/expectancies of each societal category re schools in general, students, teachers, administrators, state, federal, finance, other.

4. Revise structured and unstructured interviews in order to begin identification of how to categorize behaviors.

5. Interview 10-12 persons in each societal category with revised format.

6. Record each interview on paper, cards, tape.

7. Condense and analyze these interview results.

DECISION POINT

8. Staff discussion of results of interviews to develop standard information content for questionnaires, Q-sort, interviews, or other procedures.

9. Consult with appropriate behavioral scientists as necessary.

4.2.1.1.2 Formalize information centent into instruments to measure societal expectations of students (make a measuring instrument).

4.2.1.1.3 Determine samples in each societal category.

4.2.1.1.3.1 Determine number of persons in each category defined in 4.1.5.

4.2.1.1.3.2 Determine substrata for each societal category, e.g., age, education, sex, ethnic, race, etc.

4.2.1.1.3.3 Determine relative proportion in each substratum within each category.

4.2.1.1.3.4 Determine sample size in each stratum.

4.2.1.1.4 Determine methods of data analysis. This will include frequency distributions, percentage distributions, cross-tabulation analysis (chi-square) for 2-, 3-, and 4-way tables; ranking methods, e.g., Taub, c, Kendall's coefficient of concordance (W); analysis of variance, multiple regression, reliability estimates, etc.

4.2.1.1.5 Determine data coding

4.2.1.1.6 Determine data collection procedures. This should include the use of graduate students in the Center for Community Anthropology at San Francisco State College. In addition, low income persons working for the OEO in the four-county region should assist with data collection, as should members of each of the county advisory committees to the North Bay PACE Center.

4.2.1.1.7 Prepare forms for data collection.

4.2.1.1.8 Field test instruments.

4.2.1.1.9 Revise as necessary.

4.2.2 Determine actual behavior of students.

  - 4.2.2.1 Determine methodology.
    - 4.2.2.1.1 Formalize information content into instruments.
    - 4.2.2.1.2 Determine samples in each student category.
      - 4.2.2.1.2.1 Determine number of persons in each category.
      - 4.2.2.1.2.2 Determine substrata in each category.
      - 4.2.2.1.2.3 Determine relative proportion in each category.
      - 4.2.2.1.2.4 Determine sample size in each category.
    - 4.2.2.1.3 Determine methods of data analysis
    - 4.2.2.1.4 Determine data coding
    - 4.2.2.1.5 Determine data collection procedures
    - 4.2.2.1.6 Prepare forms for data collection

4.2.3 Collect data

  - 4.2.3.1 Collect societal expectancies
    - 4.2.3.1.1 Administer structured questionnaire to obtain regarding a sample of performance behaviors expected of students by parents, teachers, students, administrators, farmers, businessmen, clergy, plasterers, carpenters, drop-outs, etc.
  - 4.2.3.2 Collect data on actual student behavior vis-a-vis achievement in skills training, attendance at live music available, attitudes regarding excellence, attitudes toward sex, number of course hours available for opportunity, number of hours used, etc.
  - 4.2.3.3 Identify/describe actual educational opportunities.

4.2.3.3.1 Collect actual public school resources vis-a-vis terminal performance behaviors expected by society, e.g., sex education, skill training opportunities, amount of live music students can hear performed, activities related to changing attitudes regarding excellence, etc.

4.2.3.3.2 Collect other public school resources.

4.2.4 Code data

4.2.4.1 Code Societal Expectancy structured data.

4.2.4.2 Code Inventory of Actual Educational Opportunities.

4.2.4.3 Code Student Behavior data.

4.2.5 Key-punch coded data on data cards.

4.2.6 Prepare data cards for computer analysis on sorter, mark-sense punch, collator, and interpreter.

4.2.7 Write modifications to standard statistical programs on the U.C. Berkeley STATPAK IBM 7040-7094 system.

4.2.7.1 Modify REGRESSION program to accommodate dummy variables.

4.2.7.2 Modify CRTB (cross tabulation) to reject below minimum E values and to restructure rows and columns, i.e., automatic table collapse.

4.2.7.3 Modify utility printing.

4.2.7.4 Modify PLOT to print significant and nonsignificant regression lines of linear correlations, if necessary.

4.2.7.5 Write utility programs for listings.

4.2.8 Prepare control cards for computer analysis.

4.2.9 Run listings of raw data.

4.2.10 Analyze data on computer.

4.2.10.1 Run gross tabulations and analysis.

4.2.10.1.1 Inspect data for problems and modify as necessary.

4.2.10.2 Run detailed tabulations and analysis.

4.2.10.2.1 Inspect data for problems and modify as necessary.

4.2.11 Interpret data from computer analysis.

4.2.11.1 Compare identified expectancies of specialists with their perception of reality vis-a-vis terminal performance behaviors.

4.2.11.2 Compare expectancies of specialists with the public's perception of reality vis-a-vis terminal performance behaviors.

4.2.11.3 Compare expectancies of public with their perception of reality vis-a-vis terminal performance behaviors.

4.2.11.4 Compare expectancies of specialists with expectancies of public vis-a-vis terminal performance behaviors.

4.2.11.5 Compare perception of reality by specialists with perception of reality of public vis-a-vis terminal performance behaviors.

4.2.11.6 Compare perception of reality by specialists with expectancies of public vis-a-vis terminal performance behaviors.

5.0 Extablish Unmet Need Priorities

5.1 Identify largest discrepancies between expectancies and realities for each appropriate comparison with 4.2.11.

5.1.1 Rank these discrepancies without regard to regional diversity.

5.1.2 Rank discrepancies based on local resources available.

5.1.3 Rank discrepancies based on social diversity (relative subpopulations) to establish relative magnitude of need.

5.1.4 Rank discrepancies by each county advisory committee.

5.1.5 Rank discrepancies by Regional Advisory Council.

5.2 Advise Executive Board on findings.

6.0 Increase Community Awareness of Unmet Needs and Solutions.

6.1 Develop dissemination policies.

- 6.1.1 Develop policy for education community.
    - 6.1.1.1 Involve Executive Board.
    - 6.1.1.2 Involve Regional Advisory Council.
- 6.1.2 Develop policy for noneducation community.
    - 6.1.2.1 Involve each county advisory committee.
    - 6.1.2.2 Involve Regional Advisory Council.
    - 6.1.2.3 Involve Executive Board.
    - 6.1.2.4 Involve others as required.
- 6.1.3 Establish dissemination policy.

6.2 Assess Level of community awareness (i.e., establish baseline data for evaluation).

- 6.2.1 Determine number of column inches of newspaper coverage (re unmet needs and solutions).
- 6.2.2 Determine number of minutes of radio coverage (re unmet needs and solutions).
- 6.2.3 Determine number of telephone calls.
- 6.2.4 Determine number of school board approvals of new or proposed programs.
- 6.2.5 Determine voter support for operating tax increases.

6.3 Determine content areas to be reported.

- 6.3.1 Unmet needs and their identified priorities.
- 6.3.2 Solutions to meet needs.
- 6.3.3 Effectiveness of programmatic solutions to fulfill unmet needs.
- 6.3.4 Local resources available and/or offered.
- 6.3.5 Progress reports on
    - 6.3.5.1 Identifying unmet needs.
    - 6.3.5.2 Development of solutions to fulfill unmet needs.

6.3.5.3 Effectiveness of on-going programs developed to meet needs.

6.3.5.4 Increased utilization of local resources for need fulfillment.

6.3.6 Terminal reports on all content areas.

6.4 Determine methods/means.

6.4.1 Publications developed by Center.

6.4.1.1 Newsletters as needed.

6.4.1.2 Special reports and memoranda.

6.4.1.3 Brochures.

6.4.2 News media.

6.4.2.1 Newspaper releases.

6.4.2.2 Spot radio announcements.

6.4.2.3 Television coverage (KQED, KPIX).

6.4.3 Observations of demonstration program.

6.4.3.1 Establish frequency for each program.

6.4.4 Conferences (Annual?).

6.4.5 Lectures - by arrangement.

6.5 Determine and identify research findings.

6.5.1 Regional laboratories.

6.5.2 Research and development centers.

6.5.3 Other PACE centers.

6.5.4 ERIC.

6.5.5 Higher Education.

6.5.6 Local school organizations.

6.5.6 U. S. Employment Office.

6.5.8 Private industry.

- 6.5.9 Other.
- 6.6 Establish criteria for dissemination.
  - 6.6.1 Clarity
  - 6.6.2 Validity
  - 6.6.3 Pervasiveness.
  - 6.6.4 Impact.
  - 6.6.5 Timeliness.
  - 6.6.6 Practicality.
- 6.7 Disseminate information.
- 6.8 Evaluate effectiveness of information dissemination activities.
  - 6.8.1 Determine number of column inches of newspaper coverage (re unmet needs and solutions).
  - 6.8.2 Determine number of minutes of radio coverage (re unmet needs and solutions).
  - 6.8.3 Determine number of telephone calls.
  - 6.8.4 Determine number of school board approvals of new programs proposed.
  - 6.8.5 Determine voter support for operating tax increases.

7.0 Identify Local and National Resources.

- 7.1 Collect data.
  - 7.1.1 Collect public agency data.
    - 7.1.1.1 Identify type of agency (includes local, regional, state).
    - 7.1.1.2 Establish primary mission and secondary mission of agency.
    - 7.1.1.3 Assess desire to provide direct services to applicant agencies.
    - 7.1.1.4 Assess desire to provide indirect services to applicant agencies.
    - 7.1.1.5 Obtain letters of commitment/cooperation.

        - 7.1.1.6 Assess financial resources directly available to agency.
        - 7.1.1.7 Assess financial resources indirectly available to agency.
    - 7.1.2 Collect private agency data (organizations).
        - 7.1.2.1 Assess Type of agency (includes local, regional, state).
        - 7.1.2.2 Assess Primary and secondary mission.
        - 7.1.2.3 Assess desire to provide direct services to applicant agencies.
        - 7.1.2.4 Assess desire to provide indirect services to applicant agencies.
        - 7.1.2.5 Obtain letters of commitment.
        - 7.1.2.6 Assess financial resources directly available to agency.
        - 7.1.2.7 Assess financial resources indirectly available to agency.
    - 7.1.3 Collect other interest group data.
        - 7.1.3.1 Assess all functions under 7.1.1.
            - 7.1.3.1.1 Assess private businesses.
            - 7.1.3.1.2 Assess labor organizations.
            - 7.1.3.1.3 Assess culture groups.
            - 7.1.3.1.4 Assess social service interest groups (e.g., AAUW, PTA, etc.).
            - 7.1.3.1.5 Assess other groups.
    - 7.1.4 Collect national and state resource data.
- 7.2 Code data.
    - 7.2.1 Code public agency data.
    - 7.2.2 Code private agency data.
    - 7.2.3 Code other interest group data.

7.3 Key-punch coded data on data cards.

7.4 Prepare data cards for computer analysis on sorter, mark-sense punch, collator, and interpreter.

7.5 Write special utility computer programs for analysis, synthesis, and display of data.

7.5.1 Contract for computer system analyst consultation.

7.5.2 Contract for computer programmer to write programs.

7.5.3 Write "list," and other special purpose programs.

7.5.4 Contract for production of output through Sonoma County Office of Education, ESEA, Title III, data processing center.

7.6 Analyze data from computer.

7.7 Interpret data obtained from computer.

8.0 Identify And/Or Develop Educational Program(s) to Fulfill Unmet Need(s).

8.1 Compare priorities established in 5.0 with existing programs.

8.1.1 Compare with national programs.

8.1.2 Compare with California programs.

8.1.3 Compare with regional programs.

8.1.4 Compare with local programs.

8.2 Select appropriate program(s) identified in 8.1 for implementation, if available or adaptable.

8.2.1 Involve each county advisory committee to obtain opinion.

8.2.2 Involve Regional Advisory Council to obtain opinion.

(OR ALTERNATE) 8.2.3 Involve teachers and other educational personnel to obtain opinion.

8.2.4 Collate opinions from all sources.

8.2.5 Advise executive Board on findings.

8.3 Develop new programs (innovative, exemplary and/or adaptive) if necessary.

    - 8.3.1 Involve each county advisory committee to obtain ideas.
    - 8.3.2 Involve Regional Advisory Council to obtain ideas.
    - 8.3.3 Involve teachers and other educational personnel to obtain ideas.
    - 8.3.4 Collate ideas from all sources.
    - 8.3.5 Advise Executive Board on findings.

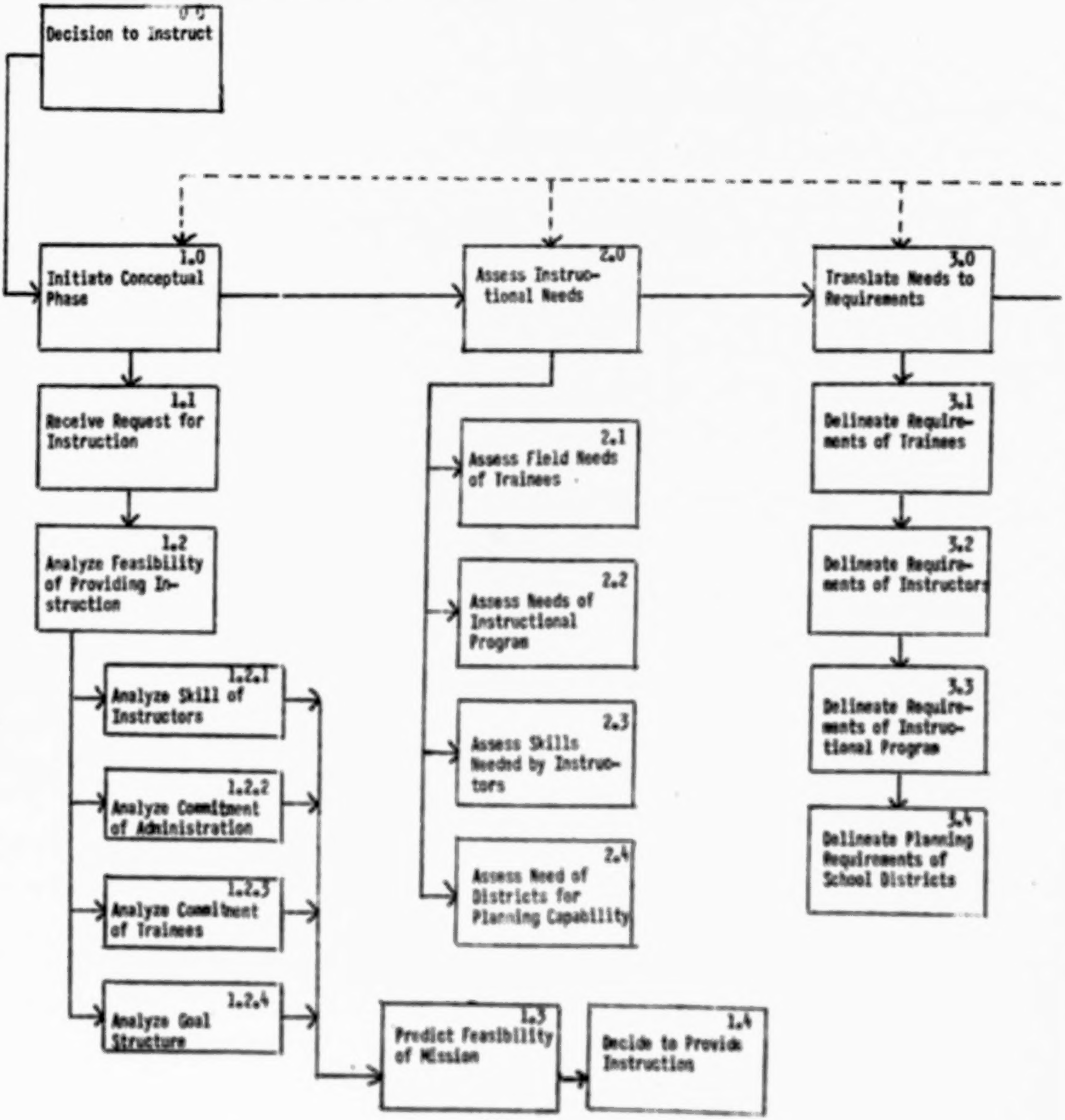
9.0 Facilitate Program Implementation.

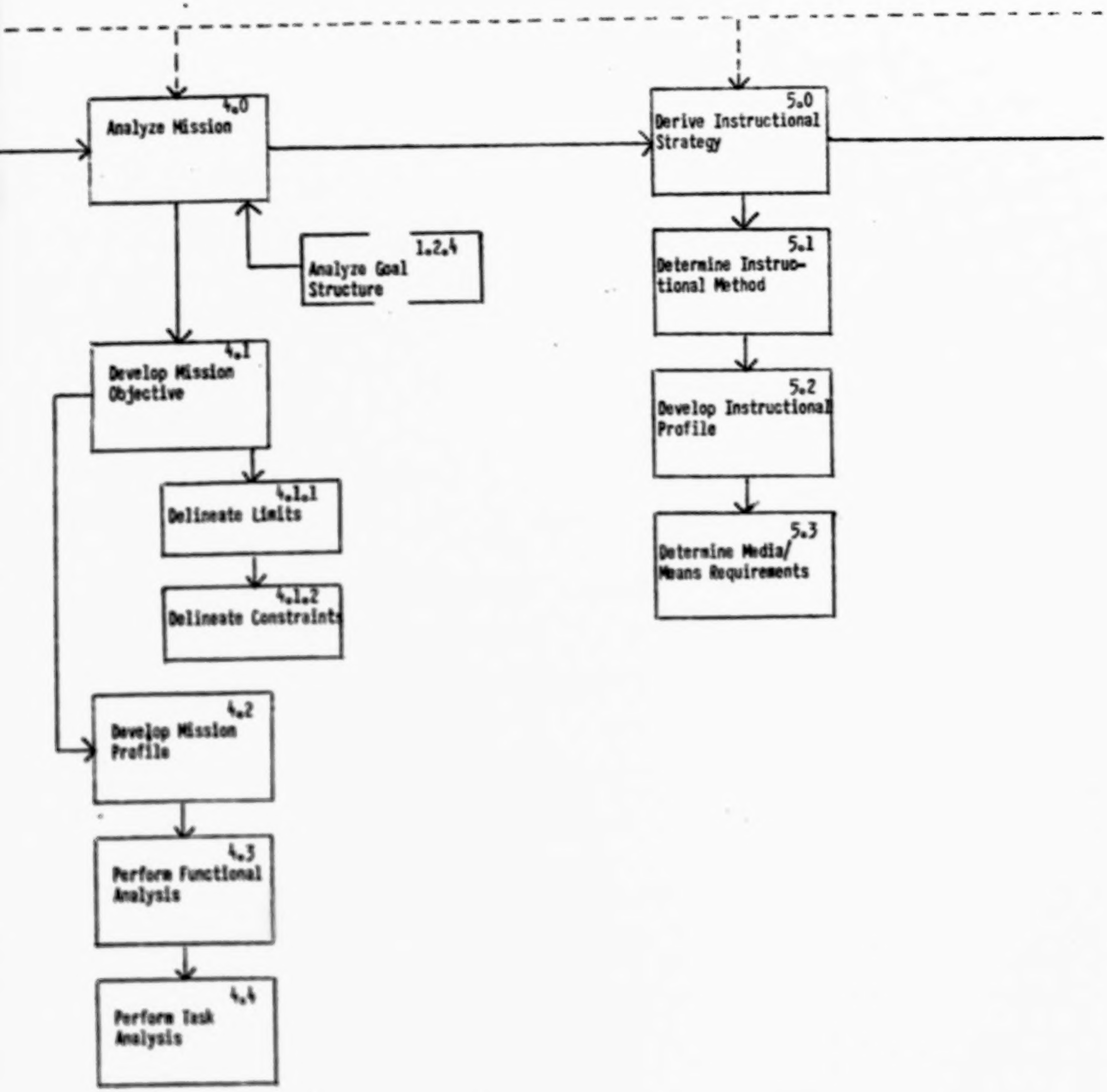
- 9.1 Write ESEA, Title III proposals.
    - 9.1.1 Determine applicant school agency.
    - 9.1.2 Determine local and regional resources available to program.
    - 9.1.3 Determine extent of involvement and participation of non-public schools.
    - 9.1.4 Determine person(s) to write proposal.
    - 9.1.5 Determine other sources of federal, state, local, and private funding as either basic or supplementary.
    - 9.1.6 Involve classroom teachers.
    - 9.1.7 Involve county advisory committees.
    - 9.1.8 Involve Regional Advisory Council.
    - 9.1.9 Involve others as necessary.
    - 9.1.10 Advise Executive Board.
    - 9.1.11 Obtain approval from county advisory committees and Regional Advisory Council.
    - 9.1.12 Obtain approval from Executive Board.
- 9.2 Write other proposals.
    - 9.2.1 Write other ESEA and other federal titles.
    - 9.2.2 Write state projects.
    - 9.2.3 Write private foundation projects.

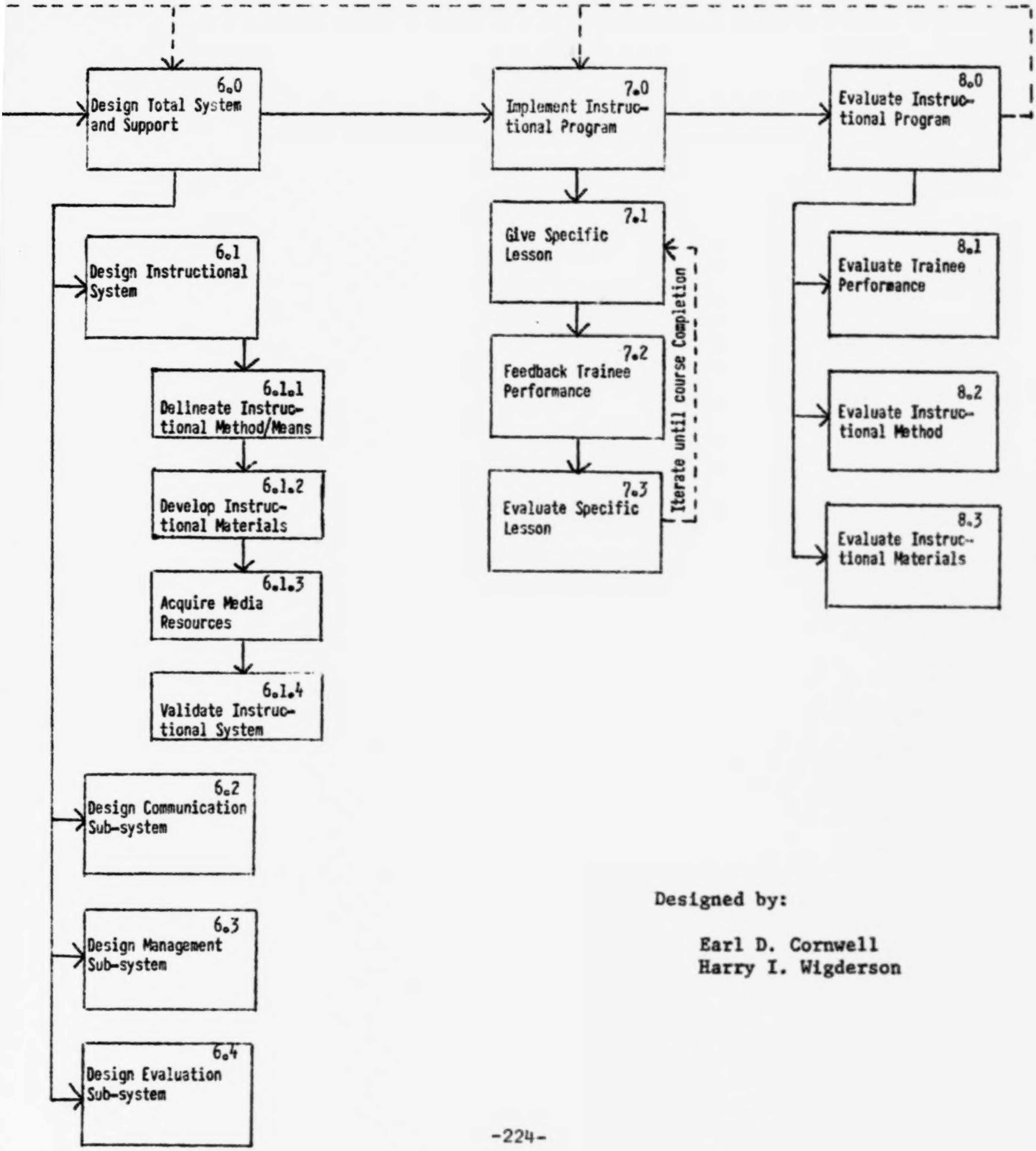
DESIGNING AN AREA INSTRUCTIONAL PROGRAM IN SYSTEM TECHNOLOGY

Harry I. Wigderson
and
Earl D. Cornwell
Multi-County Supplementary Educational Services Group

Design of an Instructional Program in System Analysis


0.0
Decision to Instruct
1.0
Initiate Conceptual Phase
1.1
Receive Request for Instruction
1.2
Analyze Feasibility of Providing Instruction
1.2.1
Analyze Skill of Instructors
1.2.2
Analyze Commitment of Administration
1.2.3
Analyze Commitment of Trainees
1.2.4
Analyze Goal Structure
1.3
Predict Feasibility of Mission
1.4
Decide to Provide Instruction
2.0
Assess Instructional Needs
2.1
Assess Field Needs of Trainees
2.2
Assess Needs of Instructional Program
2.3
Assess Skills Needed by Instructors
2.4
Assess Need of Districts for Planning Capability
3.0
Translate Needs to Requirements
3.1
Delineate Requirements of Trainees
3.2
Delineate Requirements of Instructors
3.3
Delineate Requirements of Instructional Program
3.4
Delineate Planning Requirements of School Districts


4.0
Analyze Mission
1.2.4
Analyze Goal Structure
4.1
Develop Mission Objective
4.1.1
Delineate Limits
4.1.2
Delineate Constraints
4.2
Develop Mission Profile
4.3
Perform Functional Analysis
4.4
Perform Task Analysis
5.0
Derive Instructional Strategy
5.1
Determine Instructional Method
5.2
Develop Instructional Profile
5.3
Determine Media/Means Requirements


6.0
Design Total System and Support
6.1
Design Instructional System
6.1.1
Delineate Instructional Method/Means
6.1.2
Develop Instructional Materials
6.1.3
Acquire Media Resources
6.1.4
Validate Instructional System
6.2
Design Communication Sub-system
6.3
Design Management Sub-system
6.4
Design Evaluation Sub-system
7.0
Implement Instructional Program
7.1
Give Specific Lesson
7.2
Feedback Trainee Performance
7.3
Evaluate Specific Lesson
Iterate until course Completion
8.0
Evaluate Instructional Program
8.1
Evaluate Trainee Performance
8.2
Evaluate Instructional Method
8.3
Evaluate Instructional Materials

Designed by:

Earl D. Cornwell
Harry I. Wigderson

CONCEPTUAL PHASES

Antecedents

The Tulare County Superintendent of Schools designated two staff members from the Instructional Division of the Tulare County Department of Education as participants in the PEP program. Even before instruction began, both participants made a commitment to become conversant with system analysis, to learn the techniques involved and to acquire a facility in the application of these techniques to educational problems.

As the participants progressed in their training, reaction of other staff members varied from disinterest to a casual request for a rapid overview. There were also some staff members who evinced suspicion of the system approach as too mechanical and automatic a concept which left little room for creativity. The Tulare County participants found it exceedingly difficult to translate their experiences in system analysis into succinct explanations.

During the months of December and January, the participants utilized their technical knowledge in a cooperative endeavor with the director and the instructional staff of PEP to set up a system detailing office functions. Since the product of these efforts was visable as a chart within the office, curiosity of staff members was aroused. Expression of interest manifested itself in two approaches to the participants: "Will you help me to write my proposal using the system approach?" and "Tell me what you know about system analysis so I can use it."

Decision to Instruct

The County Superintendent decided that a course in system analysis could profit members of the instructional division. Awareness of the increasing need for system tools most certainly entered into his decision. The two participants were asked at the end of January, 1967, if they would conduct a system analysis instructional program.

The first question they asked was, "Is there a need for the members of the instructional staff to have a knowledge of system techniques and an ability to utilize them?" The ever-increasing reference to system analysis in professional literature obligates all educators to become conversant with the terminology and basic concepts of system analysis. School districts constantly request assistance from county personnel in writing projects for federal funding. Such requests make knowledge of system techniques a worthwhile tool for all staff members, particularly those involved in the coordination of instructional programs on the county level.

Final commitment was made by the PEP participants to present a course of system analysis instruction to the fifteen staff members of the curricular division in the time remaining of the 1966-67 school year.

DESIGN PHASES

Requirements

The two PEP participants had previously demonstrated their ability to plan together and, with the production of system analysis materials during December and January, had shown a capability in system design. Both instructors-to-be had public school classroom experience as well as public school administrative experience and, for the past six years, experience in the coordination of educational programs on a county-wide basis.

The Director of Curriculum designated alternate Monday mornings from 8:30 to 10:30, beginning February 6, 1967, as periods for instruction. This was the time regularly allocated for instructional division staff meetings. Trainees' regular assignments were not reduced; they, therefore, had little time for out-of-class assignments.

It was the expectation of the instructors that the prospective trainees would recognize the personal benefits to be derived from the instruction; that they would make the effort necessary to learn the terminology and to become knowledgeable in the use of system tools.

Field needs of trainees indicated that strong emphasis should be put on analysis planning tools, especially development of objectives in specific performance terms.

In the time allotted, there could be a strong beginning toward understanding performance requirements, the mission analysis process, and the functional analysis process. Task analysis could be covered briefly, but in detail. Synthesis could only be introduced; experience in the procedure would have to be provided sometime in the future, perhaps as a follow-up course to the first one.

In light of the requirements, the design of an instructional program in system analysis seemed feasible.

Mission Analysis

A mission objective statement specified the measurable performances to be expected of the trainee in terms of what he must know and what he must be able to do. Included in this statement was the degree of trainee competence expected at the completion of the course.

An analysis of available resources and factors which might interfere with the completion of the mission was made. FIGURE 1 shows the Mission Objective and the Limits and Constraints of that mission.

FIGURE 2 shows a timetable for the accomplishment of the mission. It defines the major tasks to be accomplished and the proposed time schedule for these tasks.

Interim performance specifications and a terminal performance specification were also developed.

Instructional Strategy

It was determined that an inductive instructional approach would be used in the presentations. Trainees had been co-workers with the instructors for five and a half years; their reaction patterns and backgrounds were well known.

Because of the pressures of their regular responsibilities as curricular staff members, trainees would not be given outside-of-class assignments. Specific knowledges would have to be developed during the class period.

Materials, designed to present progressive learning steps, would demand individual reactions from trainees; discussions would reinforce specific behaviors and sum up particular learning sequences. System analysis techniques, in order to be learned, must be used; each lesson would therefore be structured for individual practice that would lead into group practice in these techniques. Emphasis would be on active participation by each trainee.

FIGURE 1

Design of a System Instructional Program

Mission Objective:

To develop an instructional program which will enable the Instructional Services staff of the Tulare County Department of Education: to utilize planning aspects of system analysis in their work, to improve their problem solving capabilities, to enable them to communicate using system analysis terms, and cooperatively to design a model for a systematic approach to developing solutions for educational problems.

Trainees will demonstrate the acquisition of system analysis tools by writing a Mission Statement, designing a Mission Profile, and designing a model for problem solution which, when presented to the group, will receive 80 per cent acceptance from the group that it meets the criterion of system analysis.

Limits:

Time: Trainees are already involved in full-time responsibilities. Lessons are limited to two-hour presentations every other week. Instruction will begin February 6, 1967 and terminate by June 14, 1967.

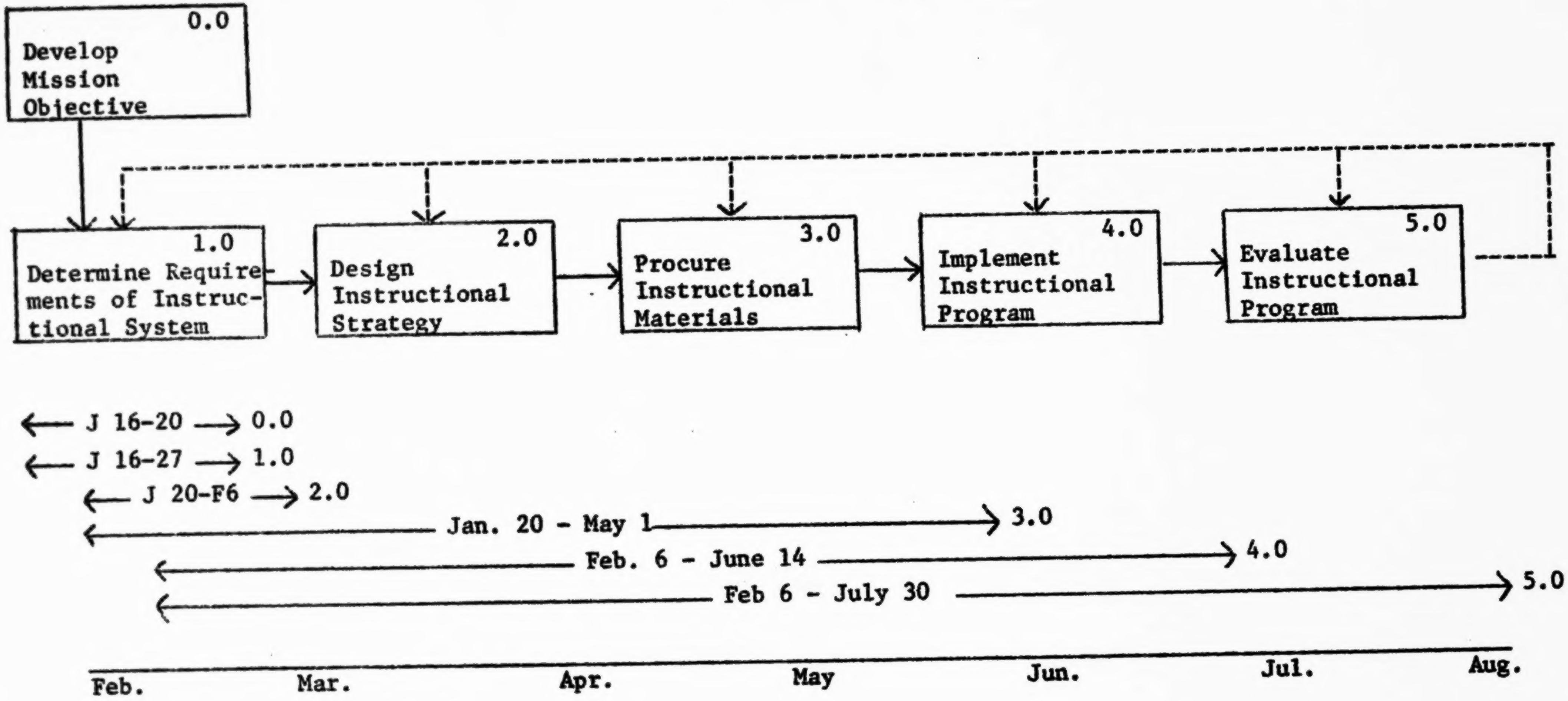
Personnel: Two instructors who have demonstrated capability in system analysis techniques and who hold valid California Teaching and Administrative Credentials will be responsible for the design, implementation, and evaluation of the instructional program. Fifteen members of the Curricular Division of the Tulare County Department of Education will participate as trainees.

Facilities: The board room of the Department of Education offers limited space and teaching environment. A portable blackboard can be used and virtually unlimited AV equipment is available from the audio-visual department.

Constraints: There are varying degrees of resistance to system engineering concepts. Normal fears of change have been accentuated by a recent change in the county superintendency.

FIGURE 2

Mission Profile
System Analysis Training Program


0.0
Develop Mission Objective
1.0
Determine Requirements of Instructional System
2.0
Design Instructional Strategy
3.0
Procure Instructional Materials
4.0
Implement Instructional Program
5.0
Evaluate Instructional Program
J 16-20 0.0
J 16-27 1.0
J 20-F6 2.0
Jan. 20 - May 1 3.0
Feb. 6 - June 14 4.0
Feb 6 - July 30 5.0
Feb.
Mar.
Apr.
May
Jun.
Jul.
Aug.

At the beginning of each class period, trainees would be given mimeographed lesson sheets with spaces for reaction and time for response. The instructors then planned to use an overhead projector to record group reactions. Although it seemed necessary to delineate the total instructional method/means, and to predetermine specific areas to be covered, the instructors did not wish to structure lessons too highly or plan them too far in advance because they felt that individual and group interaction and process should affect lesson plans.

The two instructors planned to work throughout the sessions as a team, each contributing and reacting as the occasion required. Since they had previously demonstrated a capacity to work together in this fashion, roles were deliberately not structured too formally.

IMPLEMENTATION

The first lesson was presented on February 6, 1967. FIGURE 3 is the first lesson given each trainee. From the first reaction, it was obvious that all of the trainees would actively participate. Discussions were open and there was considerable interaction among trainees. As group reactions were developed on the overhead, the trainees asked that a definitive summation of the results of this interaction be given to each individual prior to the next class. Accordingly, an immediate feedback system was developed to meet this expressed need. Not only were group interactions recorded, but specific sequential learning steps reinforced. FIGURE 4 is an actual feedback of a later lesson. The feedback from early lessons were so lengthy (three to five pages) that they are not being used as illustrations.

FIGURE 3

Tulare County Department of Education
Curriculum Division Meeting

February 6, 1967

(1.1) Planning To Plan

1. What is a system?

2. What is a sub-system?

3. What is analysis?

4. What would be the advantage of analyzing a system?

5. If you were to analyze a system, how would you proceed?

FIGURE 4

Tulare County Department of Education
Curriculum Division Meeting

Feedback from March 27, 1967

(1.4) **Planning To Plan**

1. Objective as Submitted:

   This meeting must demonstrate to personnel the values received in human relations by using samples of literature and social science, fiction and non-fiction.

   a. Do we tell what the learner will be doing? (Learner will be passive--listening and watching.)

   b. Do we specify any conditions under which learner will demonstrate his competence? (Learners will be aware of values.)

2. Remember...Objectives tell:

   What...learner will be doing, described in behavioral terms
   How...under what conditions learner will demonstrate competence
   When...learner has reached acceptable performance specifications

3. A Revision of Objective:

   To conduct a meeting in which examples from literature are used as evidence of human behavior in specific situations. As a result of demonstrations, the learners will develop their own methods and will use similar examples with their students.

   Assignment: Complete the revision (or start over) to express your own objective in "proper" form according to newer thinking.

Lessons covered Systems, Modeling, Objectives, Mission Analysis, Functional Analysis, and Task Analysis. Lesson responses that indicated a need for more intensive study led to more detailed exploration of that area of instruction. Emphasis was placed upon individual practice and individual demonstrations of mastery.

Half way through the instructional program it was found that every other week was not often enough for class meetings. More time seemed to be needed for the added emphasis upon some phases of instruction. Also, the instructional division needed some of the assigned time for its regular meetings. Accordingly, instruction was subsequently scheduled for every week.

The trainees, although they worked as a whole group, began to be recognized as comprising three distinct sub-groups. There was a small core that rapidly assimilated each step of instruction and demonstrated a high ability to utilize the learnings creatively. A larger group learned and could use these learnings, but only in the context of the instruction. The third group (smaller than the second but larger than the first) were present at lessons, listened, and seemed to understand, but as learnings became more detailed, these individuals did not readily commit themselves to system analysis as a technique they could use for their own problem-solving.

EVALUATION

Something very interesting occurred at the April 27th meeting. One of the uncommitted asked, "Why has so much of the time set aside for the instructional division staff been devoted to a subject that the two of you are so interested in? Others of us cannot find time to express our ideas." This statement precipitated a discussion of what was being attempted and its worth to the individual members of the staff. It was important at this time to clarify purposes and the means of achieving them, even though the dissenting group was small. Luckily for the ego-enhancement of the instructors, the accomplishments were vociferously defended by another group. As a result of this "moment of truth," the following evaluation device was constructed and given all the trainees. (See FIGURE 5) A tally of results showed that more than 80 per cent wanted the instruction to continue somewhat as it had been, with 66 per cent desiring a great deal more training in the technique of problem-solving. A schedule of future instruction was constructed and over half of the trainees signed a commitment to attend each of the lessons. Many of those who could not make this commitment had interference from their regular assignments.

In order to "talk out" the dissatisfaction expressed, the questions that had been broached were formalized and discussed at the next meeting. (See FIGURE 6) It was made clear that only those who wished to participate actively should attend sessions. Since then, interest has been especially keen and sessions have been highly motivated, many of them extending voluntarily an hour or two beyond the time set for closure. Dropouts did not occur as expected, although it is evident that there are still a few trainees not completely "sold" on system analysis.

At the time this paper is being prepared, the final evaluation has not been made. However, progress can be relatively measured to a relative degree in terms of interim and terminal performance specifications and both instructors feel they can predict outcomes in terms of mission accomplishment.

FIGURE 5

MEMO

TO: Curricular Staff

FROM: Earl and Harry

SUBJECT: Evaluation of System Analysis Training

PLEASE ANSWER AND RETURN IMMEDIATELY

1. This training has been: Of great value ☐
   Of some value ☐
   Of little value ☐

2. This training has been presented: In too much detail ☐
   In sufficient detail ☐
   In too little detail ☐

3. The training to date has given me tools I have applied: A lot ☐
   Some ☐
   Little or not at all ☐

4. Future training will: Be necessary--I need a lot more ☐
   Be of little concern--but I may need some more ☐
   Be unnecessary--I have enough ☐

5. In the future, I would advise that the instructors:

6. Comment on: Amount of time spent on presentation
   Day and hour of presentations
   Relating presentation to work of individual staff members

FIGURE 6

Tulare County Department of Education
Curriculum Division Meeting

May 1, 1967

Planning To Plan

Questions Asked of Us:

1. Why is the training being given only to the instructional services division--why not to the rest of the staff?
2. How will the training be applied to more effective working relationships with administrators, teachers, students?
3. Where does it all lead to? What is the future of System Analysis? What are the objectives of this mission of instruction?
4. If we don't "show up," will we be subject to disciplinary action?
5. How is System Analysis different from the pre-service training we received in our teacher training?
6. What of the current problems which previously required Monday morning meetings of the instructional services staff? We still need to discuss our programs and ways of working.

It would appear that over 60 per cent of those who began the course are, at the present time, capable of writing a mission objective, developing a mission profile, and developing an elementary functional analysis. The group capability to develop a two-level functional flow chart can be illustrated by the feedback from June 5, 1967. (See FIGURE 7)

CONCLUSIONS AND RECOMMENDATIONS

To those who are considering the design of a program of instruction in system analysis, the following suggestions are made:

1. The administration wishing to present such a course of instruction must make commitments
    - a) to select only those who will benefit from the instruction and who have indicated a strong interest in it, and
    - b) to release the personnel to be trained not only for time to be spent in instruction, but also for time to be devoted to "out-of-class" activities connected with the instructional program.
2. Trainees must make a commitment that
    - a) they will attend lesson sessions regularly, and
    - b) they will work on application of techniques to their own "real-world" responsibilities during the time between lessons.
3. Prior to actual instruction there should be an orientation overview of what will be covered, how it relates to prospective trainees and their work, and what is expected of trainees. This overview could be presented to the entire staff and then

FIGURE 7

Functional Flow Block Diagram
for Developing a Summer School Program

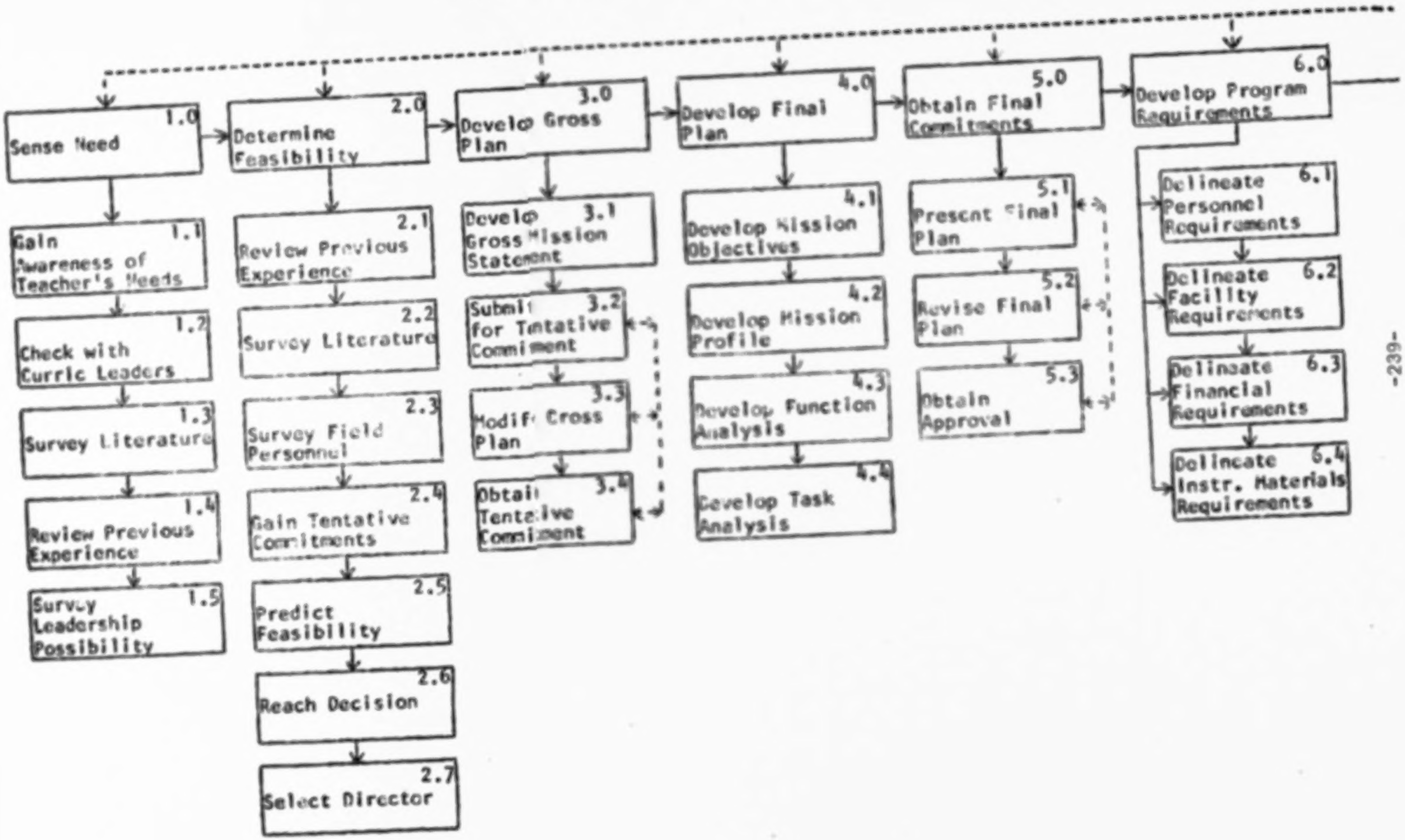
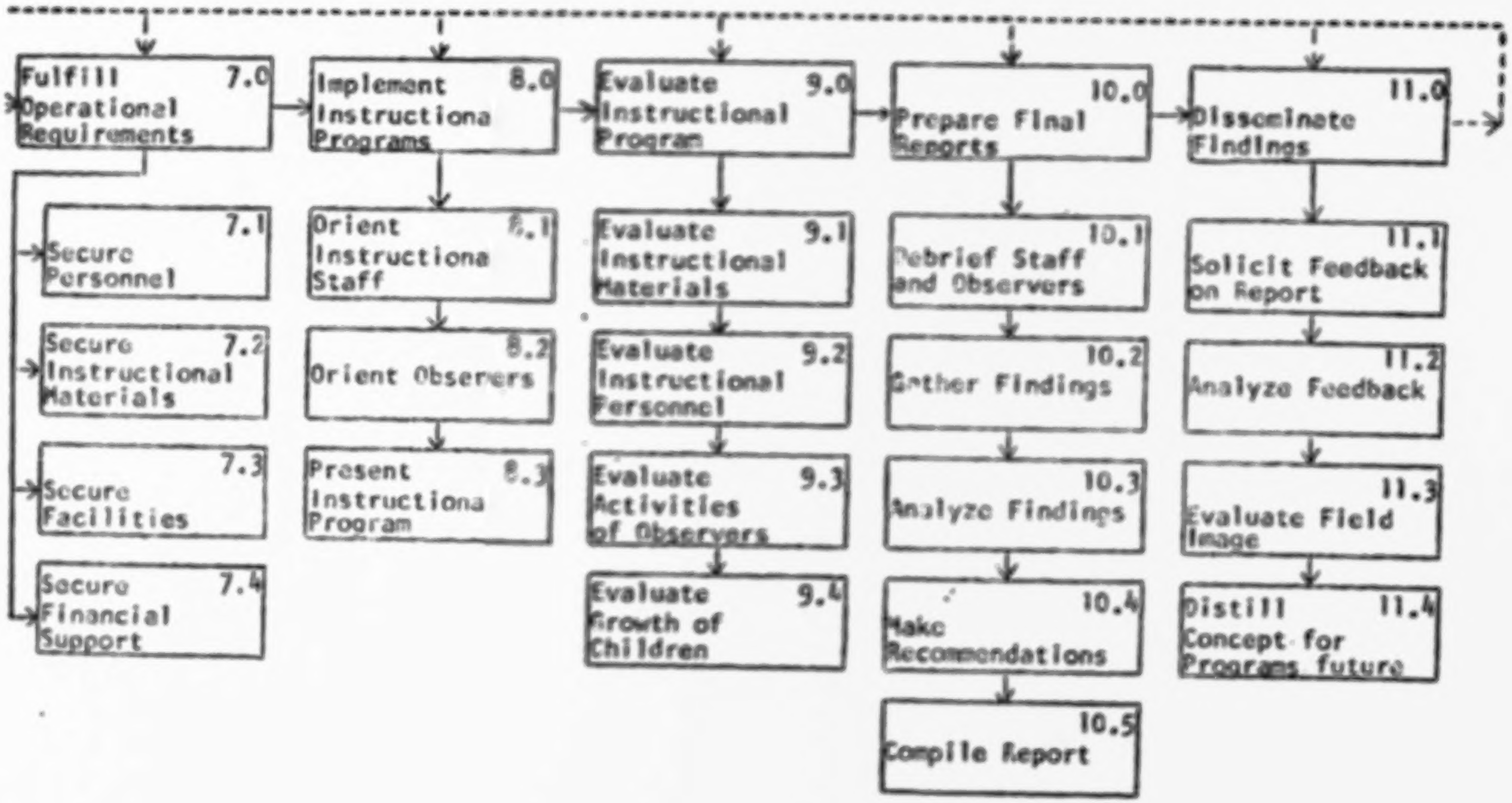

1.0 Sense Need
1.1 Gain Awareness of Teacher's Needs
1.2 Check with Curric Leaders
1.3 Survey Literature
1.4 Review Previous Experience
1.5 Survey Leadership Possibility
2.0 Determine Feasibility
2.1 Review Previous Experience
2.2 Survey Literature
2.3 Survey Field Personnel
2.4 Gain Tentative Commitments
2.5 Predict Feasibility
2.6 Reach Decision
2.7 Select Director
3.0 Develop Gross Plan
3.1 Develop Gross Mission Statement
3.2 Submit for Tentative Commitment
3.3 Modify Gross Plan
3.4 Obtain Tentative Commitment
4.0 Develop Final Plan
4.1 Develop Mission Objectives
4.2 Develop Mission Profile
4.3 Develop Function Analysis
4.4 Develop Task Analysis
5.0 Obtain Final Commitments
5.1 Present Final Plan
5.2 Revise Final Plan
5.3 Obtain Approval
6.0 Develop Program Requirements
6.1 Delineate Personnel Requirements
6.2 Delineate Facility Requirements
6.3 Delineate Financial Requirements
6.4 Delineate Instr. Materials Requirements

FIGURE 7 (Con't.)

Tulare County Department of Education
Curricular Division Meeting

Feedback from June 5, 1967


Fulfill Operational Requirements 7.0
Secure Personnel 7.1
Secure Instructional Materials 7.2
Secure Facilities 7.3
Secure Financial Support 7.4
Implement Instructiona Programs 8.0
Orient Instructiona Staff 8.1
Orient Observers 8.2
Present Instructiona Program 8.3
Evaluate Instructional Program 9.0
Evaluate Instructional Materials 9.1
Evaluate Instructional Personnel 9.2
Evaluate Activities of Observers 9.3
Evaluate Growth of Children 9.4
Prepare Final Reports 10.0
Debrief Staff and Observers 10.1
Gather Findings 10.2
Analyze Findings 10.3
Make Recommendations 10.4
Compile Report 10.5
Disseminate Findings 11.0
Solicit Feedback on Report 11.1
Analyze Feedback 11.2
Evaluate Field Image 11.3
Distill Concept for Programs future 11.4

selection can be made from among those who are willing to expend their energies in the necessary amount of concentrated study. A signed "contract" for the course could be asked of each trainee who signifies he will participate.

4. Whenever possible, real-life problems confronting trainees should be used in the instruction. This will relate training techniques to the professional world of the trainee.
5. At least one real-life problem should be used consistently throughout all the sequential learning steps.
6. Feedback is vital. Some system of communicative interchange must be devised so trainees and instructors know where each is in the instructional program at any given point.
7. Lessons must be designed to enhance a team spirit. Trainees who learn to work together in informal groups or task forces will find themselves utilizing far more of the training than those who work alone.
8. Finally, PEP participants who are brash or foolish enough to attempt the design and implementation of a course of instruction in system analysis will find it the most challenging and most rewarding of all their instructional experiences.

DEVELOPING PROGRAMS FOR THE DEAF AND SEVERELY HARD OF HEARING

Evelyn T. Ericson
Orange County Superintendent of Schools

RATIONALE:

Though special education for deaf children has existed in the United States for more than a hundred years, the results are still far from satisfactory. "The average graduate of a public or private residential school for the deaf has only an eighth grade education. Nearly 83% of deaf adults work at ordinary manual jobs as opposed to 50% of hearing adults. Over 50% of the hearing-impaired people in the United States have a family income of less than $4,000 per year."*

This does not mean that there are not dedicated and well-trained educators working constantly to improve education for the deaf, but new and more concentrated effort must be expended to help these students to achieve more effectively in the adult world. It is my hope that through the System Approach a curriculum can be planned and executed that will assure the achievement stated in the following mission.

The intent is to demonstrate that, by the System Approach, a curriculum can be planned that is logical in every detail as tested by the measurable behavior of the student. This spring I participated in a state-wide committee, sponsored by the State Department of Education, to plan for the improvement of the education of the deaf and severely hard of hearing in California. Their study dealt largely with numbers of classes, class size, supervision, equipment, and age levels. This is the implementation stage of a system planned curriculum. The State Department is now considering the development of a new curriculum for these students. The System Approach is hereby offered as an effective tool for that development.

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*Alexander Graham Bell Association for the Deaf, Inc., News, Nov. 1. 1965

MISSION:

Provide an instructional program to meet the educational needs of deaf and severely hard of hearing children which will raise their reading and writing achievement level at high school graduation so that it is equivalent to that of the average high school graduate with normal hearing.

1.0 Need Assessment

- 1.1 Determine deaf population characteristics
  - 1.1.1 No language at age 3
  - 1.1.2 Average high school graduate reads at the 5 to 7 grade level
  - 1.1.3 Deaf adults limited vocationally--few skilled and many are laborers due to language deficit
- 1.2 Determine deaf achievement expectancy at each level
  - 1.2.1 0-3
  - 1.2.2 3-6
  - 1.2.3 6-9
  - 1.2.4 9-12
  - 1.2.5 12-15
  - 1.2.6 15-18 (21)
- 1.3 Determine average achievement expectancy of a normal child at each level

        - 1.3.1 0-3
        - 1.3.2 3-6
        - 1.3.3 6-9
        - 1.3.4 9-12
        - 1.3.5 12-15
        - 1.3.6 15-18 (21)
    - 1.4 Compare deaf with normal
        - 1.4.1 0-3
        - 1.4.2 3-6
        - 1.4.3 6-9
        - 1.4.4 9-12
        - 1.4.5 12-15
        - 1.4.6 15-18 (21)
    - 1.5 Determine realistic upgrading program objective for each level for deaf pupils
        - 1.5.1 0-3
        - 1.5.2 3-6
        - 1.5.3 6-9
        - 1.5.4 9-12
        - 1.5.5 12-15
        - 1.5.6 15-18 (21)
- 2.0 Program development and design (for upgrading deaf population)
    - 2.1 Age 0-3
        - 2.1.1 Write curriculum objectives for age level in behavioral terms (measureable)
        - 2.1.2 Perform analysis of objectives and learning steps for beginning example

2.1.2.1 Terminal performance objectives

2.1.2.1.1 Language X

2.1.2.1.2 Application

2.1.2.1.3 Inner language

2.1.2.2 Interim performance objectives

2.1.2.2.1 Language exists

2.1.2.2.2 Amount of lipreading

2.1.2.2.3 Understanding situations

2.1.2.3 Learning steps

2.1.3 Perform a method/means analysis and trade-off for learning steps

2.1.3.1 Determine what is available

2.1.3.2 What are the advantages

2.1.3.3 What are the disadvantages

2.1.3.4 Use data to determine final methods/means decisions

2.1.4 Design a strategy for implementing the program for this level

2.1.4.1 Design a preliminary strategy

2.1.4.2 Allocate functions and tasks

2.1.4.3 Delineate methods/means requirements

2.1.5 Collect materials for implementation and/or design new materials

2.1.5.1 Design methods/means vehicles

2.1.6 Field test to validate program

2.1.6.1 Pre-test; post-test

2.1.6.2 Method of teaching

    2.1.7 Revise as result of field test

    2.1.8 Implement program

        2.1.8.1 Management (see State Report)

    2.1.9 Evaluate and up-grade

2.2 Age 3-6

    2.2.1 Repeat pattern 2.1.1 through 2.1.9

2.3 Age 6-9

    2.3.1 Repeat pattern 2.1.1 through 2.1.9

2.4 Age 9-12

    2.4.1 Repeat pattern 2.1.1 through 2.1.9

2.5 Age 12-15

    2.5.1 Repeat pattern 2.1.1 through 2.1.9

2.6 Age 15-18 (21)

    2.6.1 Repeat pattern 2.1.1 through 2.1.9

PROGRAM FOR THE INITIATION OF LEARNER-ORIENTED TEACHING
PILOT

Louis E. Holden
Atascadero Unified School District
and
Raymond M. Langley
San Luis Obispo County Superintendent of Schools

It is difficult to determine the terminology that applies to a project before it actually becomes a project.

Initially, it is a little more than a nervous idea--which thrashes around until it is recognized as a potential for serious consideration and is exposed to the slings and arrows of outrageous criticism. Surviving this, it is subject to an indeterminate period of gestation and ultimately a go/no-go decision based upon meeting the criteria for survival in the spartan world of Title III.

Somewhere between conception and realization, a project might be more aptly named a proposal--and hopefully not identified as a proposition.

A proposal should probably anticipate a change in behavior--for that matter, so should a proposition. A proposal, however, is usually subject to considerably more negotiation than is a proposition; consequently, we have adopted the term proposal to describe PILOT during the courtship period.

A proposal might be seen as the summation of collective creativity--defined in a logical and defensible structure designed to guarantee the greatest probability for success.

The proposal named PILOT, or Project for the Initiation of Learner-

Oriented Teaching, has many godfathers. The initial thinking and planning for this proposal was participated in by many of those present today. Rather than run through a list of 50 names, Dr. Holden and I wish to express our appreciation for the invaluable assistance provided by members of the State Department of Education, and the many other PEP participants who have helped in the planning and development of this proposal.

Curriculum design is changing rapidly. Yesterday's instructional programs were developed through the efforts of individual teachers. Today's programs are often the product of teacher teams. Tomorrow's programs will be the product of teams of specialists, some of whom will be teachers.

The cost of the development of modern curricula has become prohibitive for many county and district organizations. One firm recently spent over half a million dollars and fifty-four thousand man-hours in the development of a life science series for grades four through twelve. This means that many counties and districts will be forced to abandon their traditional competitive roles of "curriculum developers." The new role of the county office may well be found in areas of research, coordination, and inservice training. The new role of the district is likely to become that of "curriculum consumer."

Commercial interests have been quick to recognize the rich new market in education. There has been a rush to capitalize upon this discovery. Many firms, stimulated by the profit motive, are racing headlong into the development field. Educators are now finding that materials and hardware

are being produced by organizations whose interests and objectives do not necessarily parallel those of local educational institutions. The adage, Caveat Emptor--"Let the buyer beware" might better be changed to "Let the buyer be aware!"

With this change in the role of counties and districts has come a need for change in the function of county and district personnel. Specialists in the various disciplines taught in our schools must advise administrators and boards on the purchase of curricula which best meet the individual needs of the unique clientele characteristic of each local district. This will require clear definition of student needs, clearly written educational objectives expressed in behavioral terms, development of criteria for the selection of the most suitable available curricula, development of a logical and systematic selection process for the proper curricula, modification of those curricula to meet the particular needs of the local student client group, and finally, the skillful implementation of modified curricula by a sensitive staff. The PILOT program is designed to serve as a model to counties and districts as they attempt to perform these functions. Through PILOT both county and district staff members will receive training in order to develop and improve staff capability in areas of:

1. planning--related to development of curriculum methods and media;
2. development of measurable educational objectives as described in behavioral terms;
3. staff sensitivity; and
4. group dynamics.

These skills would then be used by the district personnel as they:

1. use their special skills to recognize and place in priority order recognized learner needs;
2. evaluate the present program in terms of learner needs;
3. determine the feasibility of providing for learner needs;
4. develop models which indicate feasible ways to proceed in the selection and use of new curricula;
5. determine criteria for curriculum selection;
6. select the "what" and the "how" of the new curricula;
7. implement the new curricula in selected areas; and
8. complete the loop with review and correction.

County Office of Education personnel will be responsible to assure operational maintenance by providing inservice training to newly employed district personnel as staff attrition occurs. It is also necessary that the county provide a coordinating function and be able to advise various districts regarding possible selection of personnel for consultant services. During this entire process, both the county and the district will maintain on-going and systematic communications so that these processes will receive proper support and therefore be continued.

PILOT is designed to phase out federal support at the end of the second year. At this point it is anticipated that inservice instructional packages and/or techniques will have been developed that are replicable without unusual expense.

Federal funding has been applied entirely toward the planning and pilot stages. No federal funds have been allocated for the administration of the project other than those needed to assist administration during the developmental period.

Dr. Holden and I welcome any who wish to participate as observers as this project develops. Your reactions and evaluations are welcome--in fact, they are hopefully sought.

VISUALS

PLANNING

1. Indicates a planning year which also encompasses the actual inservice instruction in system techniques, sensitivity, and group dynamics.

   System techniques will be taught in two consecutive 10 week sessions at California State Polytechnic College.

   During this time planning for seminars in group dynamics and sensitivity training will be carried out.

   - "Task Force" will then recognize and order learner needs.
   - Determine how well the present instructional system meets these needs.
   - Develop models and strategies for selection--implementation and evaluation of feasible curricula which meet learner needs.

PILOT

2. The second year employs the Task Force skills to:
   - determine curricula for curricula selection;
   - determine criteria for selection of curricula;
   - identify--select and modify methods and media for implementation;
   - implement the new curricula in select areas; and
   - review and correct.

OPERATIONAL THIRD YEAR

3. Place operational model in practice.

PHASES	PLANNING		
	First Year of Project		
YEARS	1967 / 1968	1968	1968
MONTHS	Sept. '67, October, November, December, January '68, February	March, April, May	June, July, August '68
FLOW CHART (See page 11-12)	1.1	1.2 + 1.3 + 1.4	1.5
DESCRIPTION OF PROGRAM -- "What happens"	Teach skills to selected personnel of the target district and Tri-County area. Provide inservice training to selected personnel in the target district and Tri-County area which will strengthen their skills in: 1. System Technology (planning) 2. Sensitivity and group dynamics 3. Development of learner-centered instructional objectives expressed in behavioral terms thereby preparing the professional staff to select, modify and implement instructional objectives. Repeat instruction in System Technology January, 1968, to March, 1968. Concurrently - seminars in Group Dynamics and Sensitivity	Use skills to recognize and report learner needs congruent to [illegible] Center. Determine the degree to which the present instructional [illegible] are meeting the present learner needs (requirements of behavior) as recognized by the selected personnel. Use special skills to determine feasibility of providing for learner needs.	Use skills to develop models which tell us how to proceed to select and use new curricula. Develop models and strategies for the selection, implementation and evaluation of feasible learner experience (curricula) which meet recognized and inferred learner needs as determined by the selected personnel (Task Force).
DELEGATION OF RESPONSIBILITY -- "Who makes it happen"	● Instruction in System Technology at California State Polytechnic College September, 1967 - January, 1968, R. W. Langley assisted by consultant service from Dr. R. E. Corrigan and Litton Education Division. ● Plan Instruction for Group Dynamics and Sensitivity Coordination - Dr. William Hunt, Northwest Regional [illegible], Portland, Oregon, or other consultant with similar capability. Consultants to be selected by Dr. Hunt, Dr. L. E. Nelson, and R. W. Langley with assistance from California State Department of Education personnel. ● Dr. L. E. Nelson, Superintendent of Target District, will be responsible for coordination of the project within the district. ● Mr. R. W. Langley, Assistant Superintendent of Schools, San Luis Obispo County, will be responsible for coordination of the project at the county level.	● Task Force members (those certificated persons in the [illegible] Unified School District who have successfully completed [illegible] training in System Technology, Group Dynamics and Sensitivity) will carry out these functions.	● Selected Summer Task Force selected from the Task Force (1.2, 1.3, 1.4) - a force that represents the disciplines to be affected in the pilot activity. ● Consultant services from Litton, University of California, State Department of Education.
BUDGET -- Related to time line and program.			

	September	October	November	December	January	February	March	April	May	June	July	August	
Director	Assumed by District												
Secretary	$ 400	$ 400	$ 400	$ 400	$ 400	$ 400	$ 400	$ 400	$ 400	$ 400	$ 400	$ 400	$ 4,800
Contract Services 30 days @$[illegible]	300	300			300				100				1,000
Materials and Supplies	200												200
Travel (Director)	400	400			300				200				1,300
Telephone	25	25	25	25	25	25	25	25	25	25	25	25	300
Contract Service	1,200	1,200	1,200				500	200	[illegible]	[illegible]	[illegible]		[illegible]
Materials and Supplies	750												750
Travel (participants & substitutes)	[illegible]	[illegible]	1,200	[illegible]	250	[illegible]	1,100	1,000	[illegible]	500	[illegible]	500	[illegible]
Other expenses - tuition	1,250				1,250								2,500
Equipment - desk, typewriter, file, typing table, chair, steno [illegible]	1,500												1,500
Fixed charges	67	67	67	67	67	67	67	67	67	67	67	67	804

PHASES	PILOT		
YEARS	Second Year of Project		
	1968	1969	
MONTHS	Sept. '68 October November December	Jan. '69 February March April May	June July August Sept. '69
FLOW CHART (See page 11-12)	1.6 - 1.7	1.8	1.9
DESCRIPTION OF PROGRAM -- "What happens"	Determine curricula for curricula selection. Determine criteria which will be used to select curricula for consideration for adoption in target district. From "teaching" or "instructional" materials identify, select, and modify the method/media and content to prepare for implementation of the curricula which satisfy the needs. Proceed to select the "what" and the "how" of the new curricula.	Using the models, implement the new curricula in selected areas. Using models and strategies developed by Task Force personnel, implement curricula (Pilot Projects) for the target district in instructional areas identified.	Continue [illegible], correction and [illegible] for training of new personnel. Assure operational maintenance, continuous refinement and replicability by development of training capability at the County Office of Education
DELEGATION OF RESPONSIBILITY -- "Who makes it happen"	● Task Force Members (original total group) to develop models for instruction. ● Evaluation consultants from University of California and Litton Industries.	● Task Force Members and affected district personnel. Coordinating consultant services retained to maintain design control - consultants (1.6-1.7).	● Task Force Members from County Office of Education [illegible] maintain currency of instruction [illegible] knowledge by constant contact with [illegible] authorities for System Analysis, Group Dynamics and Sensitivity Training. ● Task Force Members from district for complete loop.

BUDGET --

Related to time line and program.

	September	October	November	December	January	February	March	April	May	June	July	August	
Director	Assumed by district												
Secretary	$ 617	$ 617	$ 617	$ 617	$ 617	$ 617	$ 617	$ 617	$ 617	$ 617	$ 617	$ 617	$ [illegible]
Duplicating Clerk	133	133	133	133	133	133	133	133	133	133	133	133	1,596
Contract Services 30 days @$100	200	200	200	300	300	300	200	300	200	200	200	200	[illegible]
Materials and Supplies	1,500	1,000						200					2,[illegible]
Travel and Substitutes for visits [illegible]	[illegible]	285	279	279	279	279	279	279	279	279	279	279	3,[illegible]
Telephone	[illegible]	25	25	25	25	25	25	25	25	25	25	25	300
Equipment related to Instruction	[illegible]												1,[illegible]
Fixed Charges													300
													$17,[illegible]

A REPORT
SYSTEM ANALYSIS AND THE SACRAMENTO COUNTY OFFICE OF EDUCATION
AN INTRODUCTORY EXPERIENCE

Victor M. Hyden
Educational Resources Agency

BACKGROUND

The Sacramento County Office of Education has available for consultation four PEP trained persons, one on the County Staff and three on the staff of the Educational Resources Agency. Their availability and other factors prompted interest in System Analysis and its possible use in County activities.

In November, 1966, a Committee of five professional persons was appointed to explore the potential(s) of System Analysis. Its assigned problem was to study the relatively low level of use of ERIC material by the schools within Sacramento County. As a result of applying System Analysis to this problem, could the Committee demonstrate any value in applying System Analysis techniques to other County problems?

COMMITTEE TRAINING AND WORK

Victor M. Hyden, Jr., ERA Staff member, introduced the basic principles of System Analysis to the Committee. Three half-day sessions were held at the ERA office. In these sessions stress was placed only on the Mission Objective, Limits and Constraints, and the Mission Analysis. The Committee accepted the relatively limited use of ERIC material as the problem to be studied and attacked the problem within the limits of their comprehension and experience with System Analysis.

The Committee requested a two-hour session with the entire county staff in order to present the System Analysis design. A "secret" mission objective was prepared to test the relative success or failure of efforts to "sell" System Analysis to the County office staff (approximately 40 professional persons). The "secret" objective included pre-presentation and post-presentation attitude inquiries relative to the acceptance or potentials of System Analysis as a tool in educational planning.

RESULTS

1. The Committee designed an attack on the ERIC problem. In so doing, it concentrated principally on the Mission Objective. The Mission Analysis took less time - even though more would have been required if the design had been intended for actual use. The Committee is convinced the design could be effectively operated if this were desired by the County.
2. The Committee accomplished its "secret" objective of gaining fifty percent conversion from negative to positive attitudes toward System Analysis techniques during the session. This was proven by preparing the pre-and post-attitude inquiries - admittedly a simple measurement device but one adequate for this situation.

*THE EVALUATION OF A MISSION OBJECTIVE (MO)

First MO Selected personnel in cooperation with ERA will develop an operational system for increased use of the ERIC distribution service by the entire educational audience within the Sacramento service area which is consistent with other educational information systems in operation within that service area.

Second MO The Sacramento County task force shall demonstrate the application of system design techniques to the Sacramento County Certificated Staff during a regular meeting in February by presenting a model which has been designed for the promotion of ERIC services.

Third MO The Sacramento County task force shall design a system to promote an awareness of ERIC's usefulness which will result in requests by 50% or more of the selected target group for increased use of materials to evaluate in terms of district needs.

Fourth MO Sacramento County task force shall design a system to promote an awareness of ERIC's usefulness which will result in requests by fifty percent or more of the selected target group for ERIC materials to evaluate in terms of district needs.

---

*A Committee practicum from the Sacramento County Office of Education

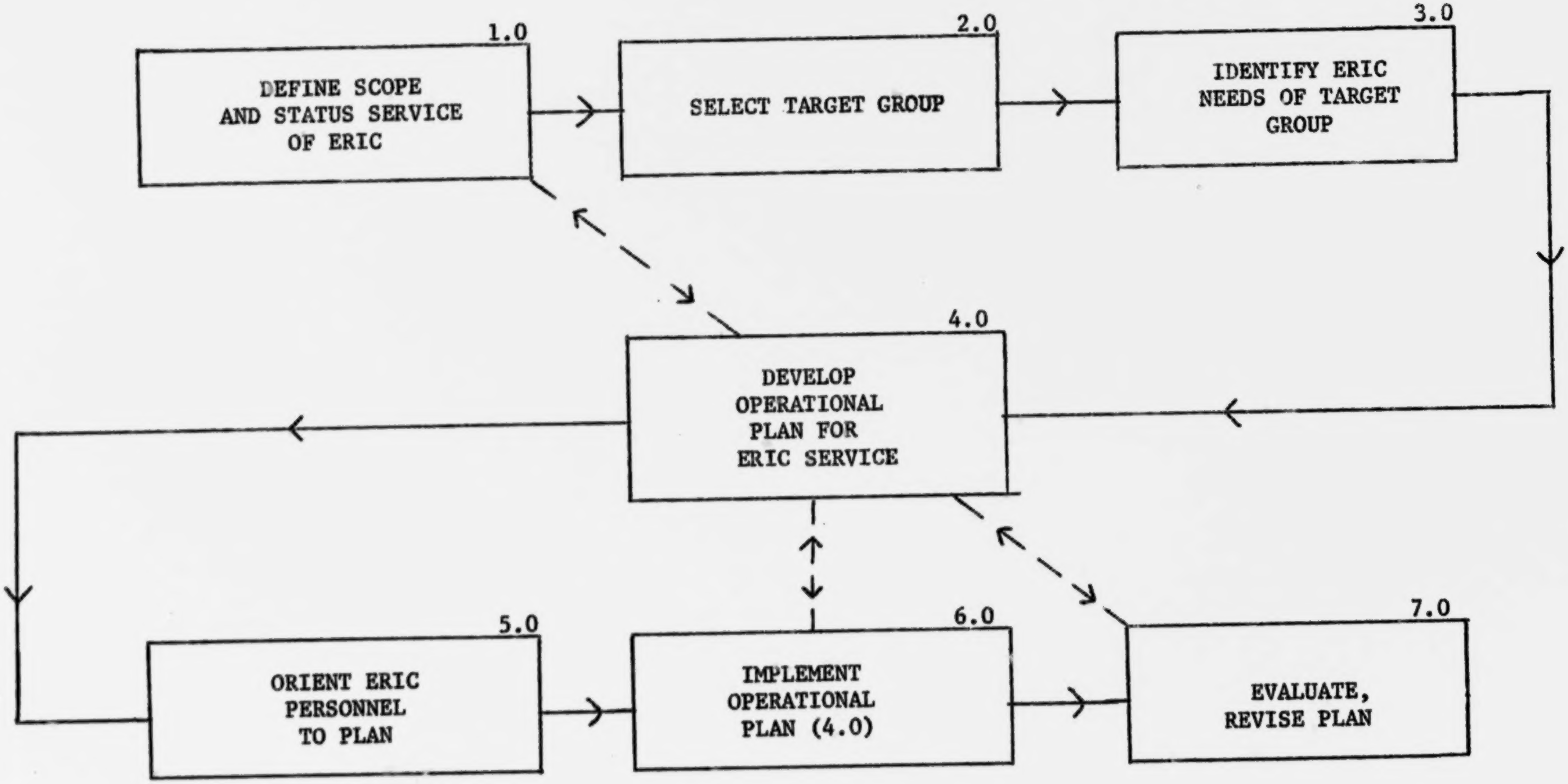
Final MO Sacramento County task force shall promote an awareness of ERIC's usefulness which will result in requests by fifty percent or more of the selected target group for ERIC materials to evaluate in terms of district needs.

NOTE: The final Mission Objective better communicates the intent of the activity (promotion) and provides a measurability factor (a behavioral change) which will indicate success and/or failure in attaining the Mission Objective.

9

MISSION OBJECTIVE

Sacramento County task force shall promote an awareness of ERIC's usefulness which will result in requests from fifty percent or more of the selected target group for ERIC materials to evaluate in terms of district needs.


1.0
DEFINE SCOPE AND STATUS SERVICE OF ERIC
2.0
SELECT TARGET GROUP
3.0
IDENTIFY ERIC NEEDS OF TARGET GROUP
4.0
DEVELOP OPERATIONAL PLAN FOR ERIC SERVICE
5.0
ORIENT ERIC PERSONNEL TO PLAN
6.0
IMPLEMENT OPERATIONAL PLAN (4.0)
7.0
EVALUATE, REVISE PLAN

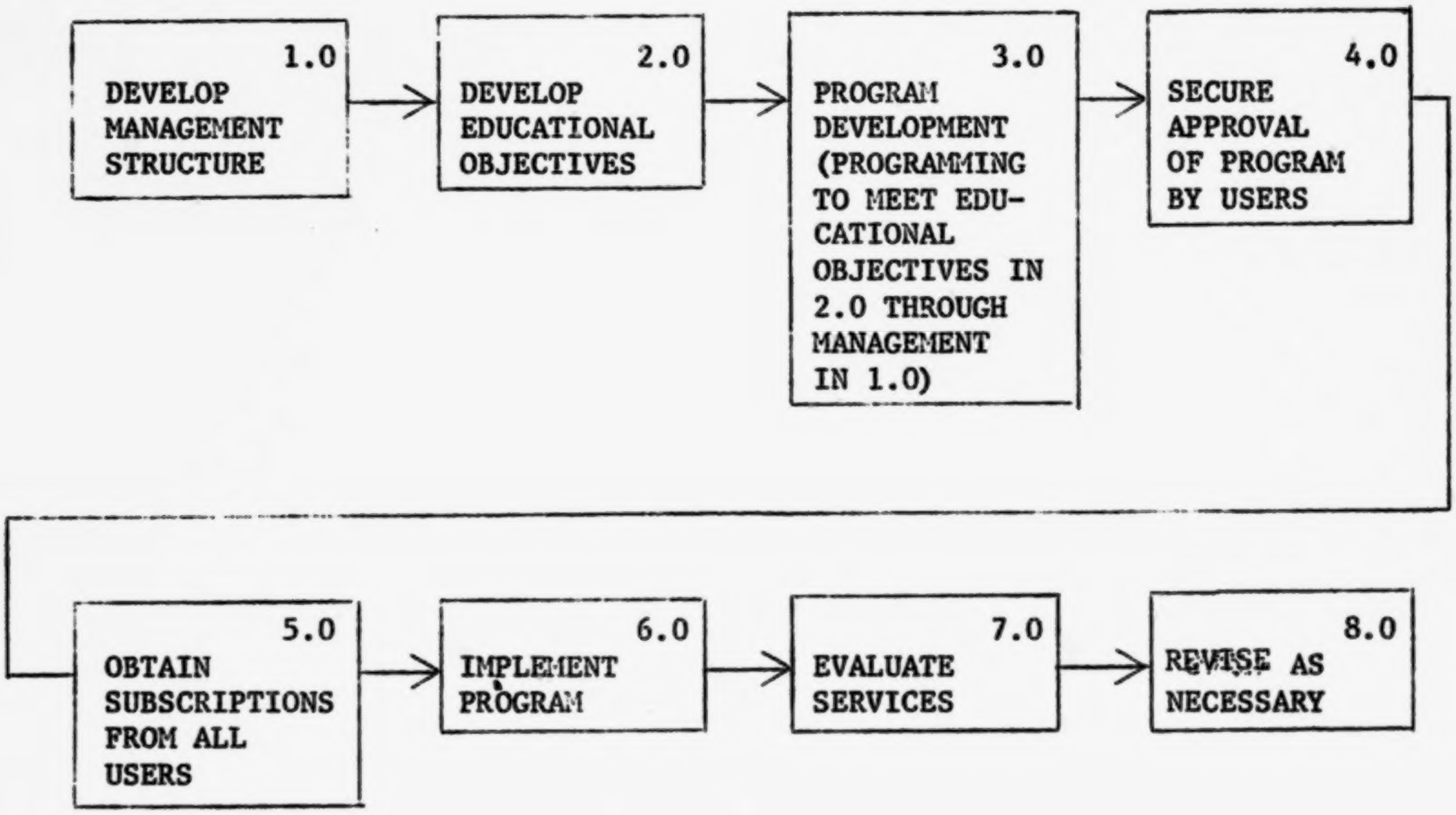
DEVELOPING AN AREA-WIDE EDUCATIONAL TELEVISION SERVICE

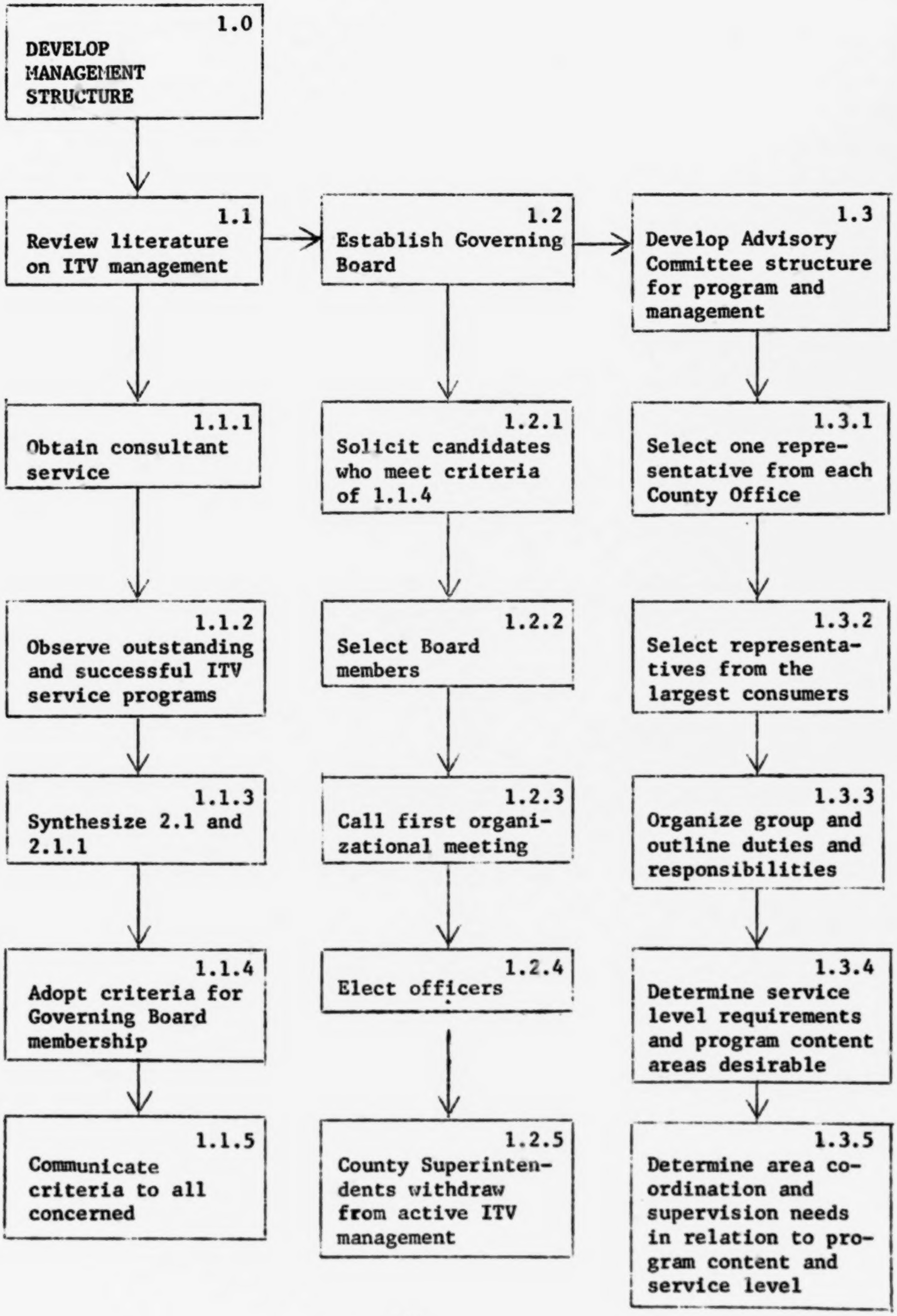
William K. Lowry
Marin County Superintendent of Schools

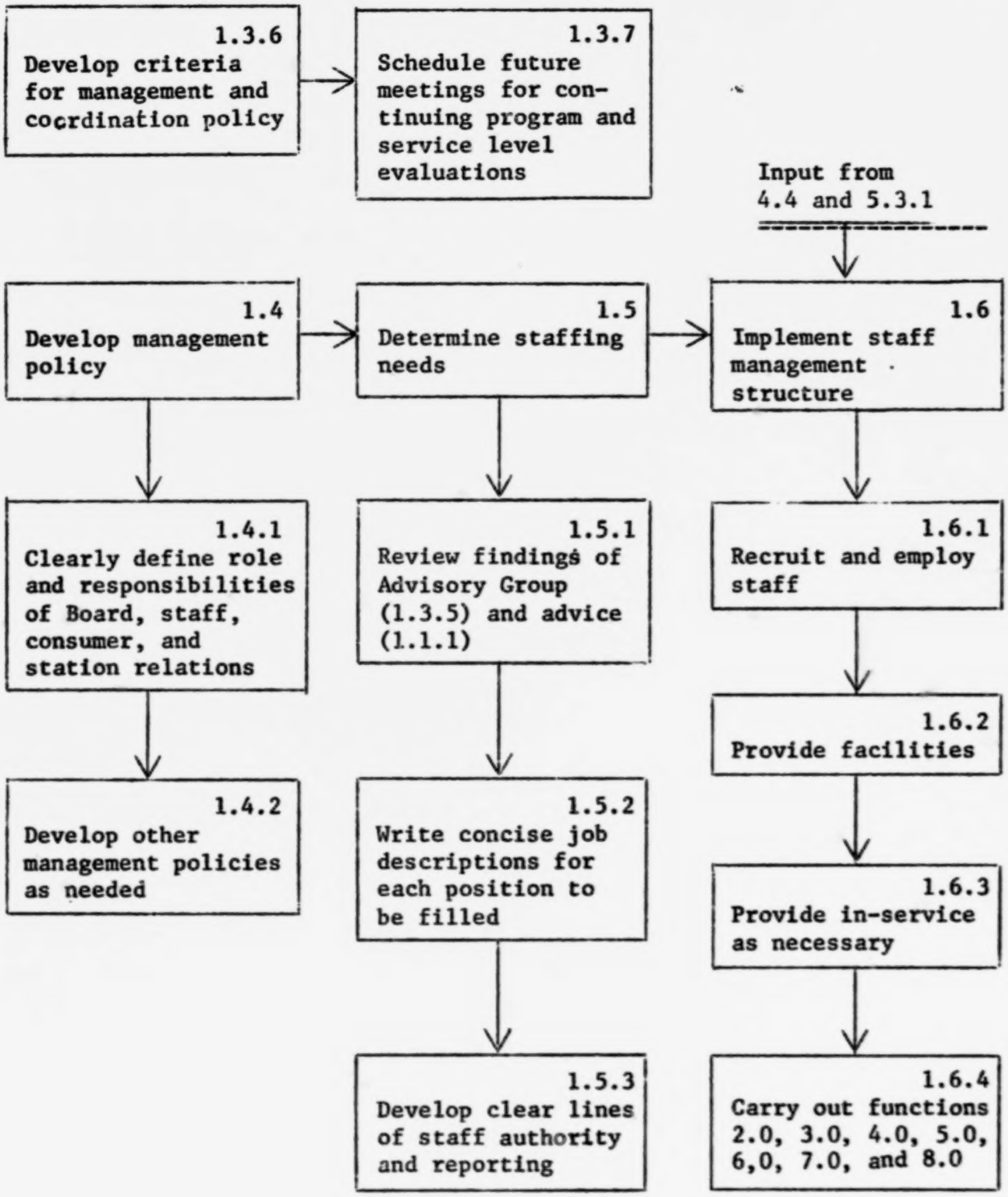
MISSION: To develop an Educational Television Instructional Service that will meet student needs in thirteen Bay Area counties.

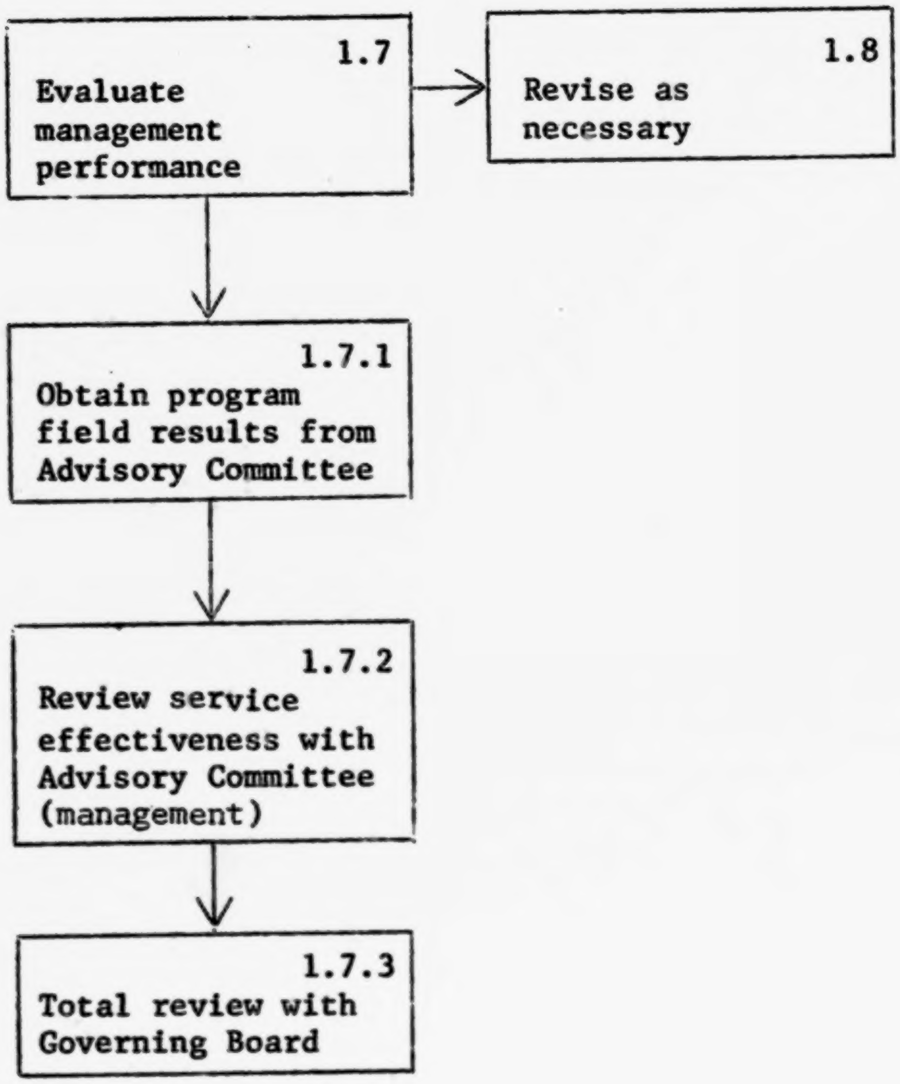
LIMITS: "N" Channels available (more than one channel is available), Reception in some non-cable areas, Available air time.

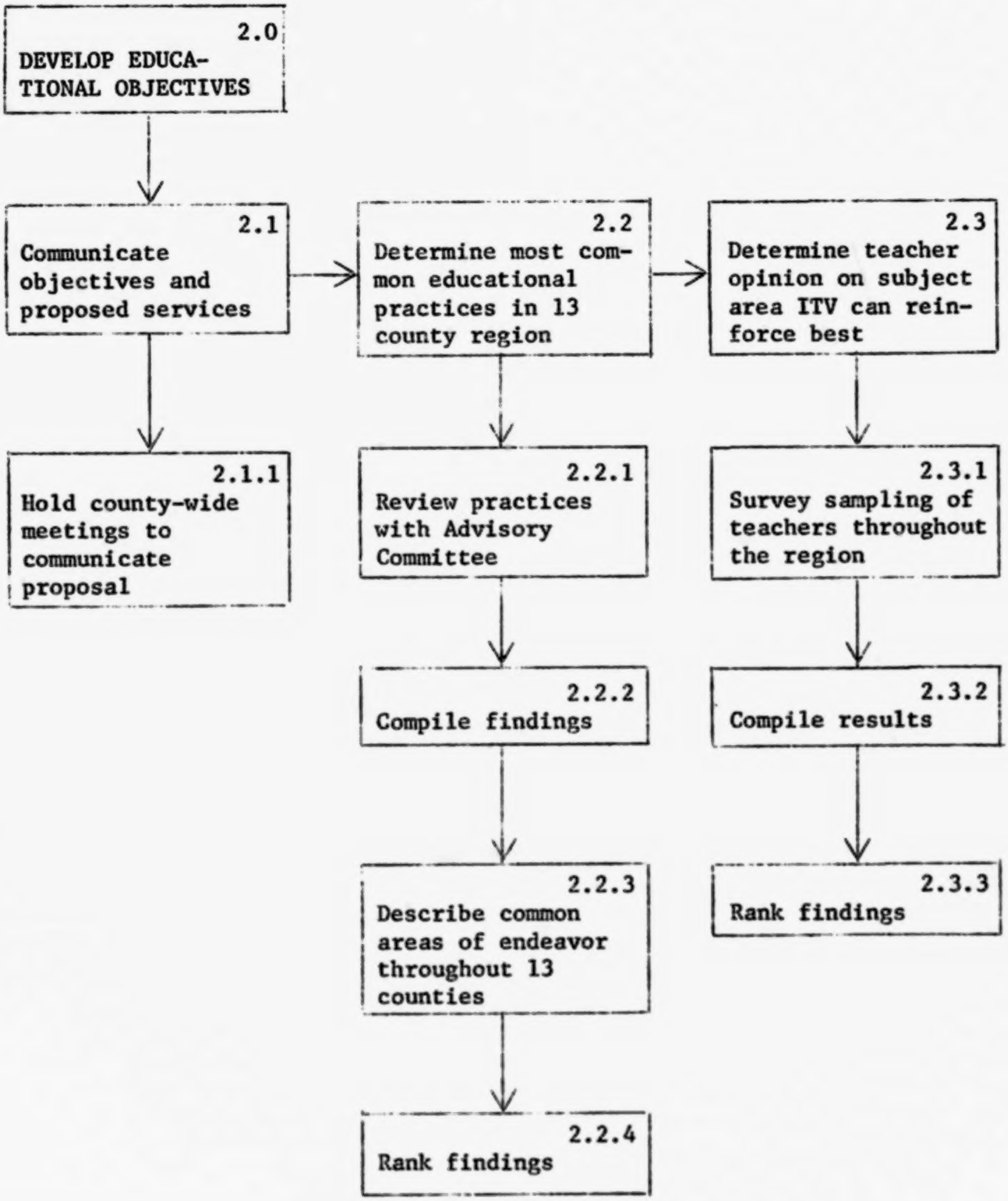
CONSTRAINTS: Independently governed broadcast stations, Voluntary participation/subscription, Large geographical area, Diverse political entities (F.C.C., County/District, Higher Education, etc.)

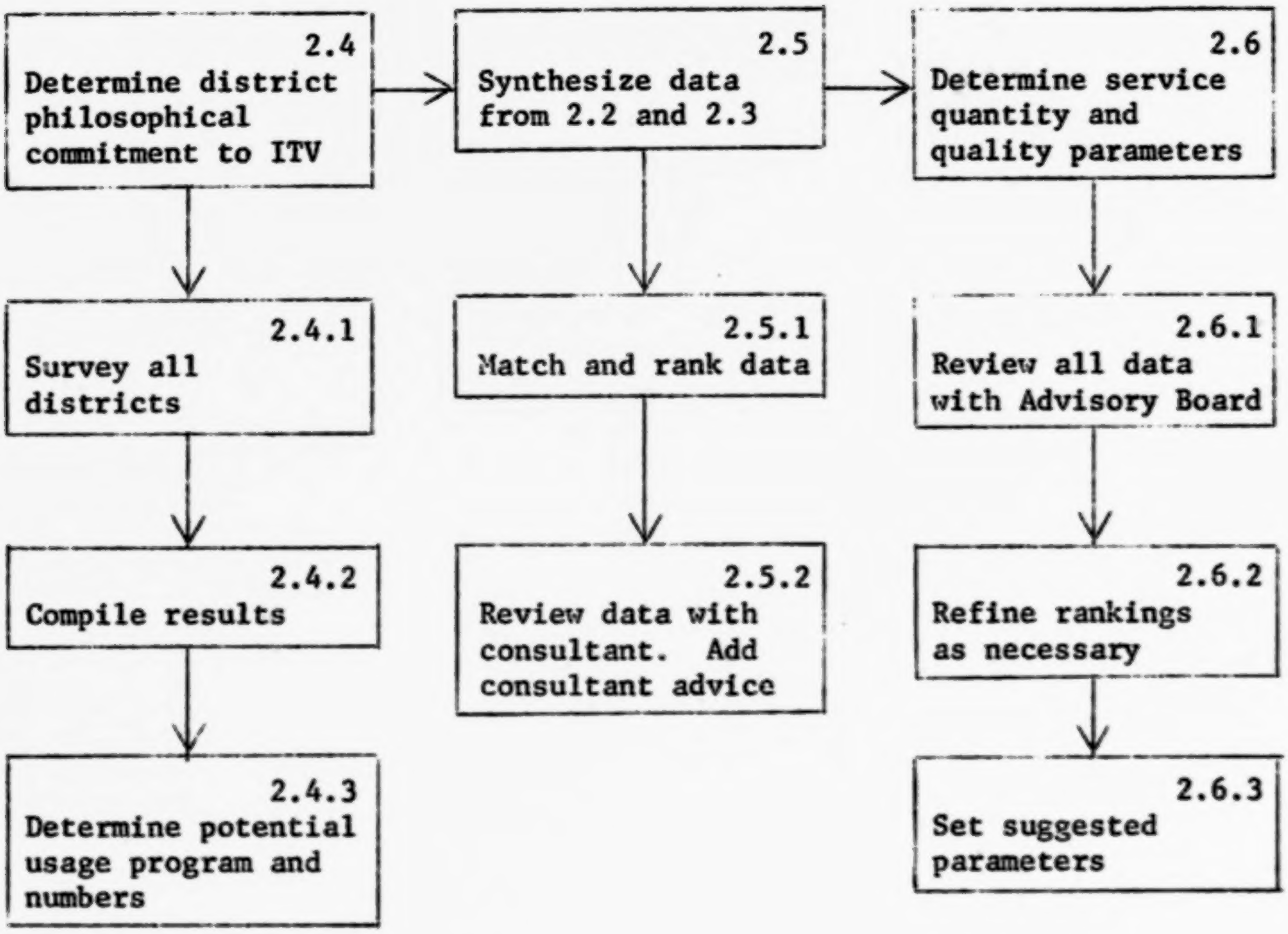

1.0
DEVELOP MANAGEMENT STRUCTURE
2.0
DEVELOP EDUCATIONAL OBJECTIVES
3.0
PROGRAM DEVELOPMENT (PROGRAMMING TO MEET EDUCATIONAL OBJECTIVES IN 2.0 THROUGH MANAGEMENT IN 1.0)
4.0
SECURE APPROVAL OF PROGRAM BY USERS
5.0
OBTAIN SUBSCRIPTIONS FROM ALL USERS
6.0
IMPLEMENT PROGRAM
7.0
EVALUATE SERVICES
8.0
REVISE AS NECESSARY

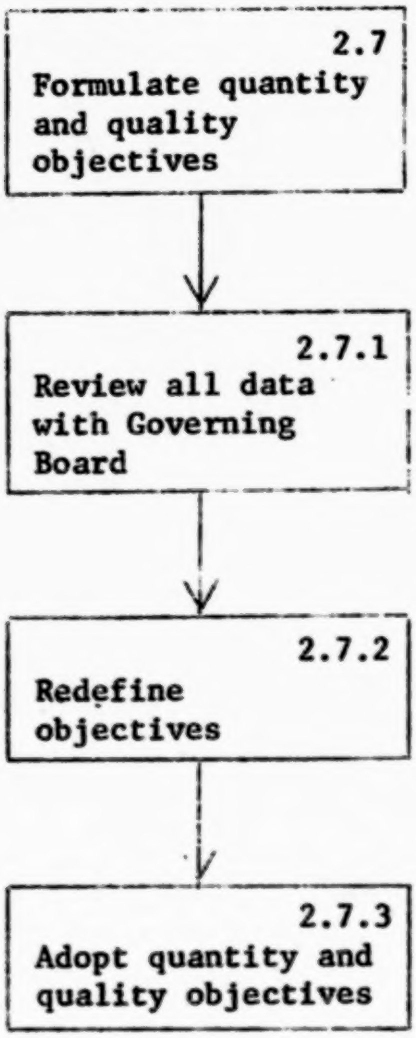

1.0
DEVELOP MANAGEMENT STRUCTURE
1.1
Review literature on ITV management
1.2
Establish Governing Board
1.3
Develop Advisory Committee structure for program and management
1.1.1
Obtain consultant service
1.2.1
Solicit candidates who meet criteria of 1.1.4
1.3.1
Select one representative from each County Office
1.1.2
Observe outstanding and successful ITV service programs
1.2.2
Select Board members
1.3.2
Select representatives from the largest consumers
1.1.3
Synthesize 2.1 and 2.1.1
1.2.3
Call first organizational meeting
1.3.3
Organize group and outline duties and responsibilities
1.1.4
Adopt criteria for Governing Board membership
1.2.4
Elect officers
1.3.4
Determine service level requirements and program content areas desirable
1.1.5
Communicate criteria to all concerned
1.2.5
County Superintendents withdraw from active ITV management
1.3.5
Determine area coordination and supervision needs in relation to program content and service level

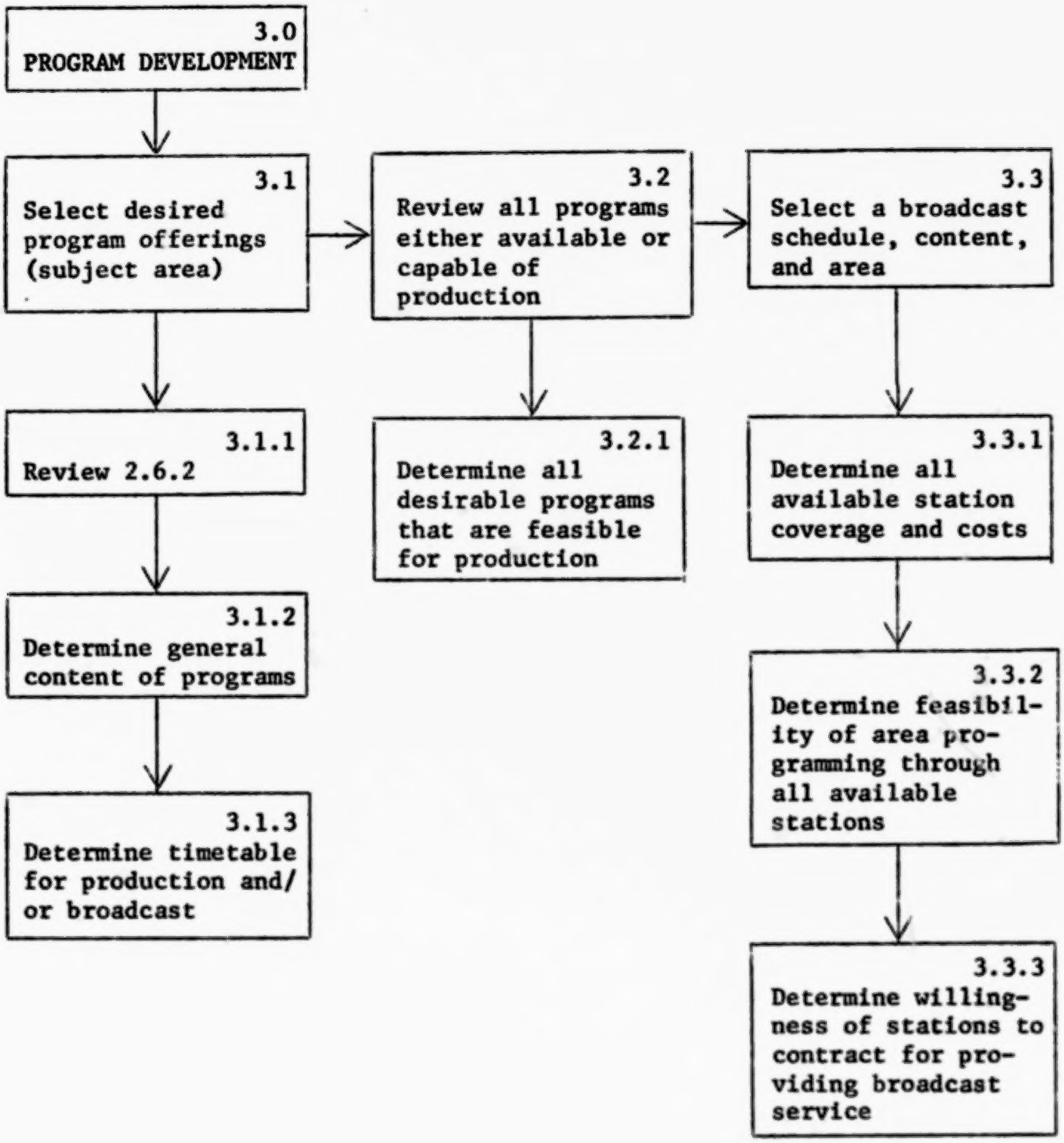

1.3.6
Develop criteria for management and coordination policy
1.3.7
Schedule future meetings for continuing program and service level evaluations
Input from 4.4 and 5.3.1
1.4
Develop management policy
1.5
Determine staffing needs
1.6
Implement staff management structure
1.4.1
Clearly define role and responsibilities of Board, staff, consumer, and station relations
1.5.1
Review findings of Advisory Group (1.3.5) and advice (1.1.1)
1.6.1
Recruit and employ staff
1.6.2
Provide facilities
1.4.2
Develop other management policies as needed
1.5.2
Write concise job descriptions for each position to be filled
1.6.3
Provide in-service as necessary
1.5.3
Develop clear lines of staff authority and reporting
1.6.4
Carry out functions 2.0, 3.0, 4.0, 5.0, 6,0, 7.0, and 8.0

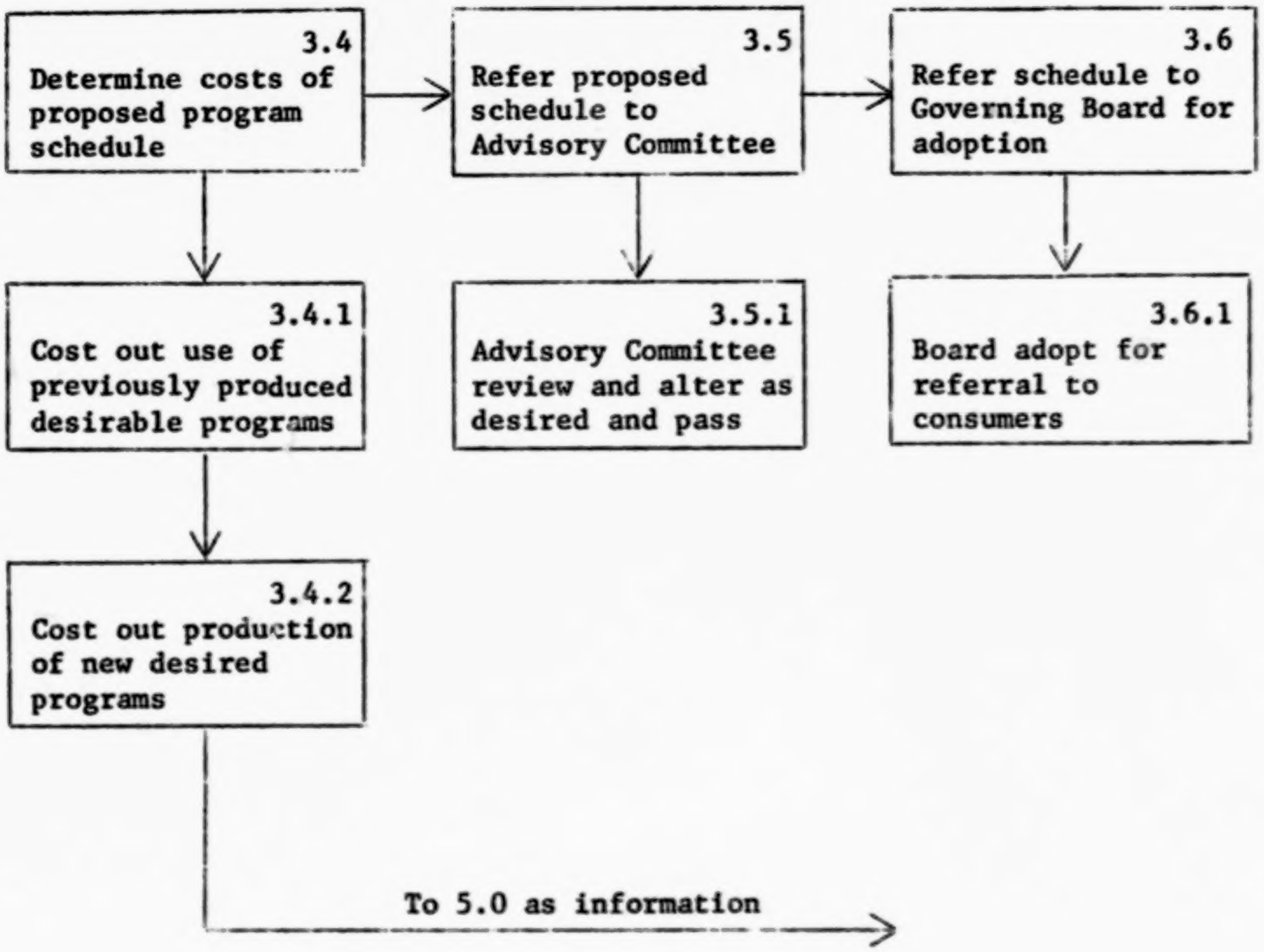

1.7
Evaluate management performance
1.8
Revise as necessary
1.7.1
Obtain program field results from Advisory Committee
1.7.2
Review service effectiveness with Advisory Committee (management)
1.7.3
Total review with Governing Board

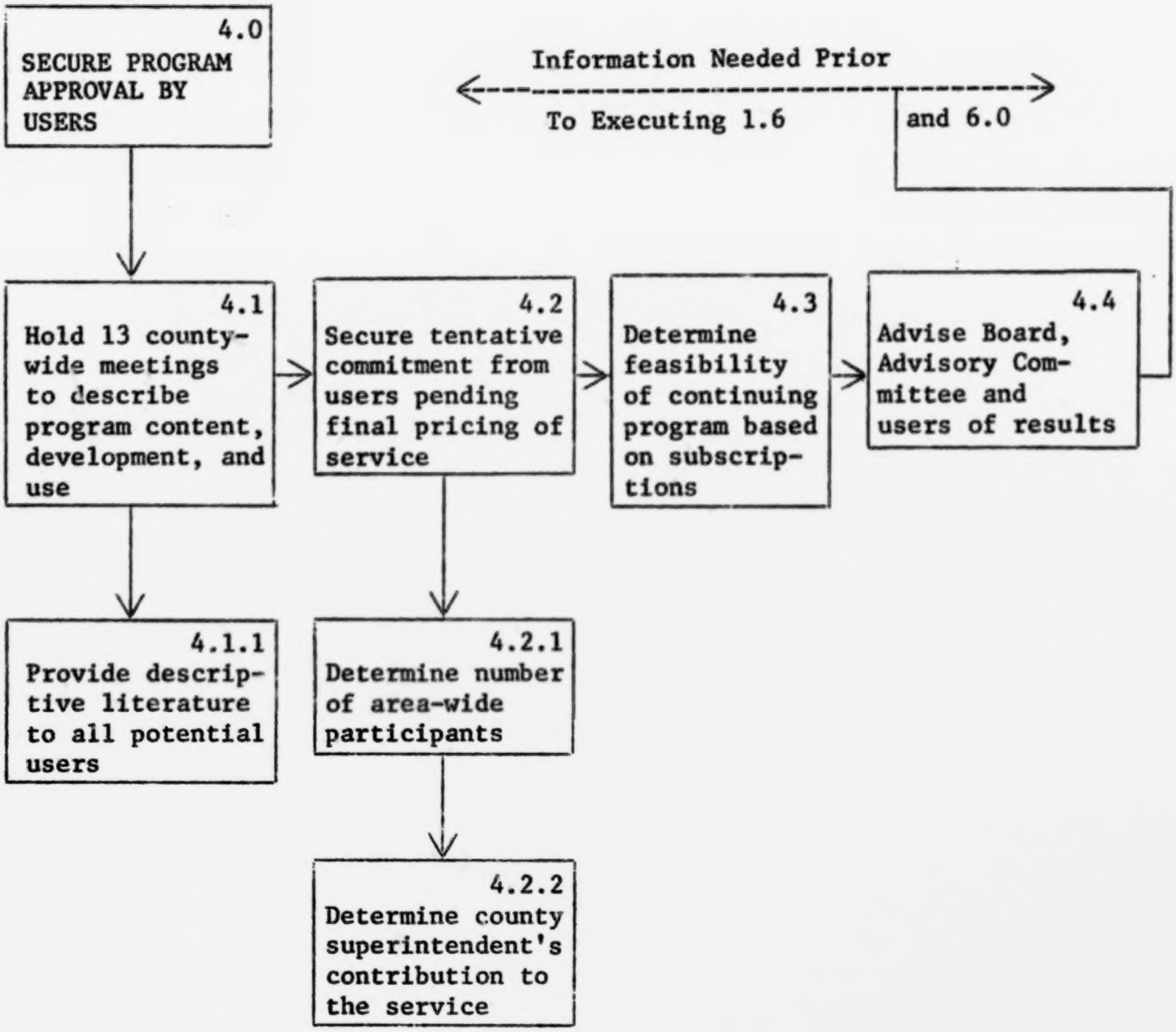

2.0 DEVELOP EDUCATIONAL OBJECTIVES
2.1 Communicate objectives and proposed services
2.1.1 Hold county-wide meetings to communicate proposal
2.2 Determine most common educational practices in 13 county region
2.2.1 Review practices with Advisory Committee
2.2.2 Compile findings
2.2.3 Describe common areas of endeavor throughout 13 counties
2.2.4 Rank findings
2.3 Determine teacher opinion on subject area ITV can reinforce best
2.3.1 Survey sampling of teachers throughout the region
2.3.2 Compile results
2.3.3 Rank findings

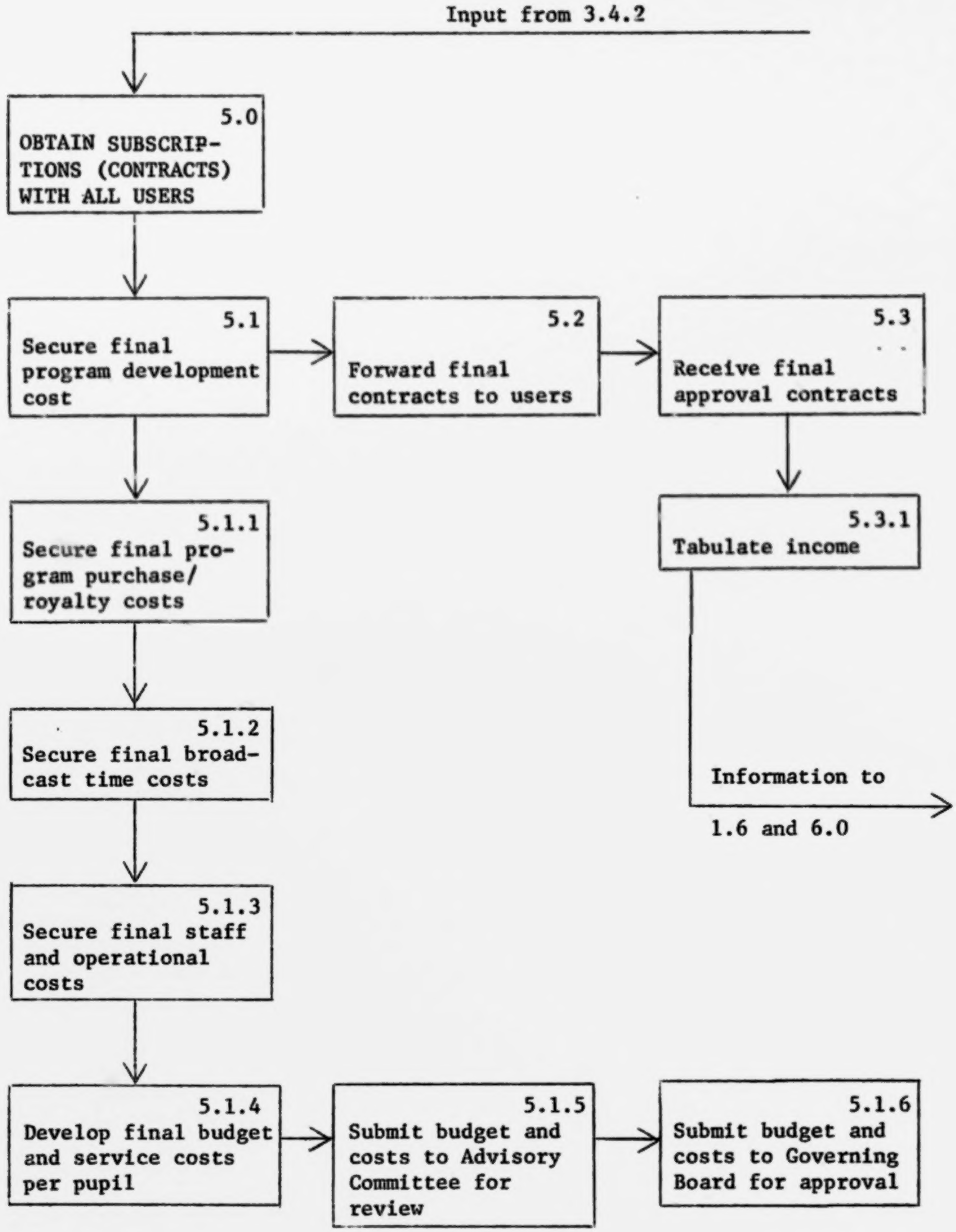

2.4
Determine district philosophical commitment to ITV
2.4.1
Survey all districts
2.4.2
Compile results
2.4.3
Determine potential usage program and numbers
2.5
Synthesize data from 2.2 and 2.3
2.5.1
Match and rank data
2.5.2
Review data with consultant. Add consultant advice
2.6
Determine service quantity and quality parameters
2.6.1
Review all data with Advisory Board
2.6.2
Refine rankings as necessary
2.6.3
Set suggested parameters

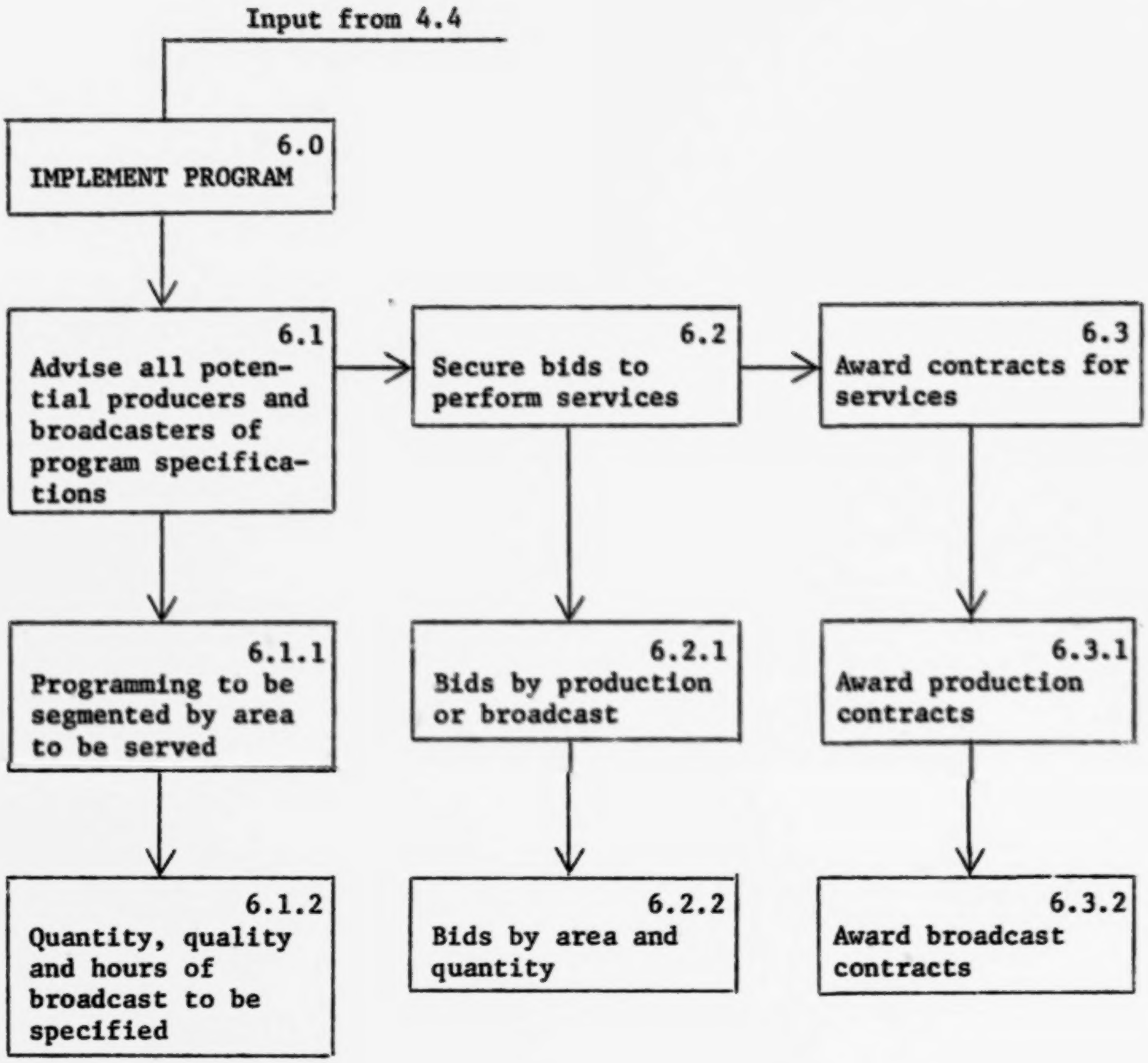

2.7
Formulate quantity and quality objectives
2.7.1
Review all data with Governing Board
2.7.2
Redefine objectives
2.7.3
Adopt quantity and quality objectives

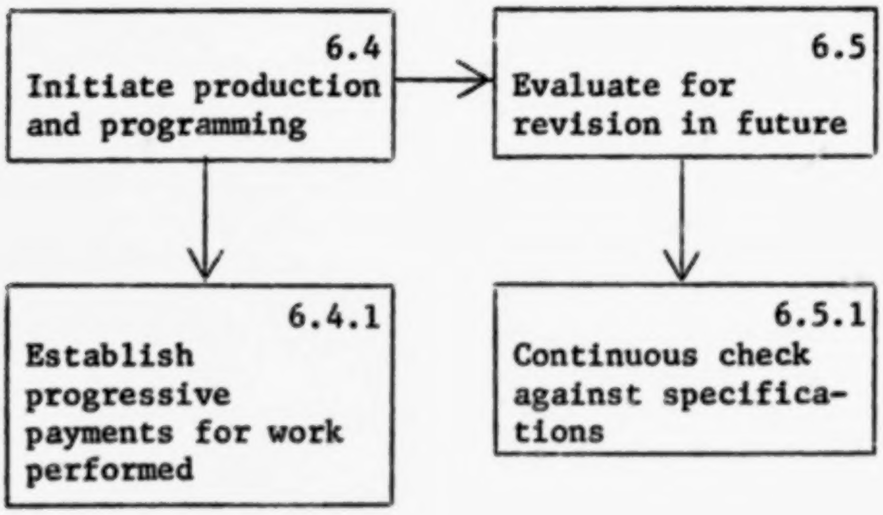

3.0
PROGRAM DEVELOPMENT
3.1
Select desired program offerings (subject area)
3.2
Review all programs either available or capable of production
3.3
Select a broadcast schedule, content, and area
3.1.1
Review 2.6.2
3.2.1
Determine all desirable programs that are feasible for production
3.3.1
Determine all available station coverage and costs
3.1.2
Determine general content of programs
3.3.2
Determine feasibility of area programming through all available stations
3.1.3
Determine timetable for production and/or broadcast
3.3.3
Determine willingness of stations to contract for providing broadcast service

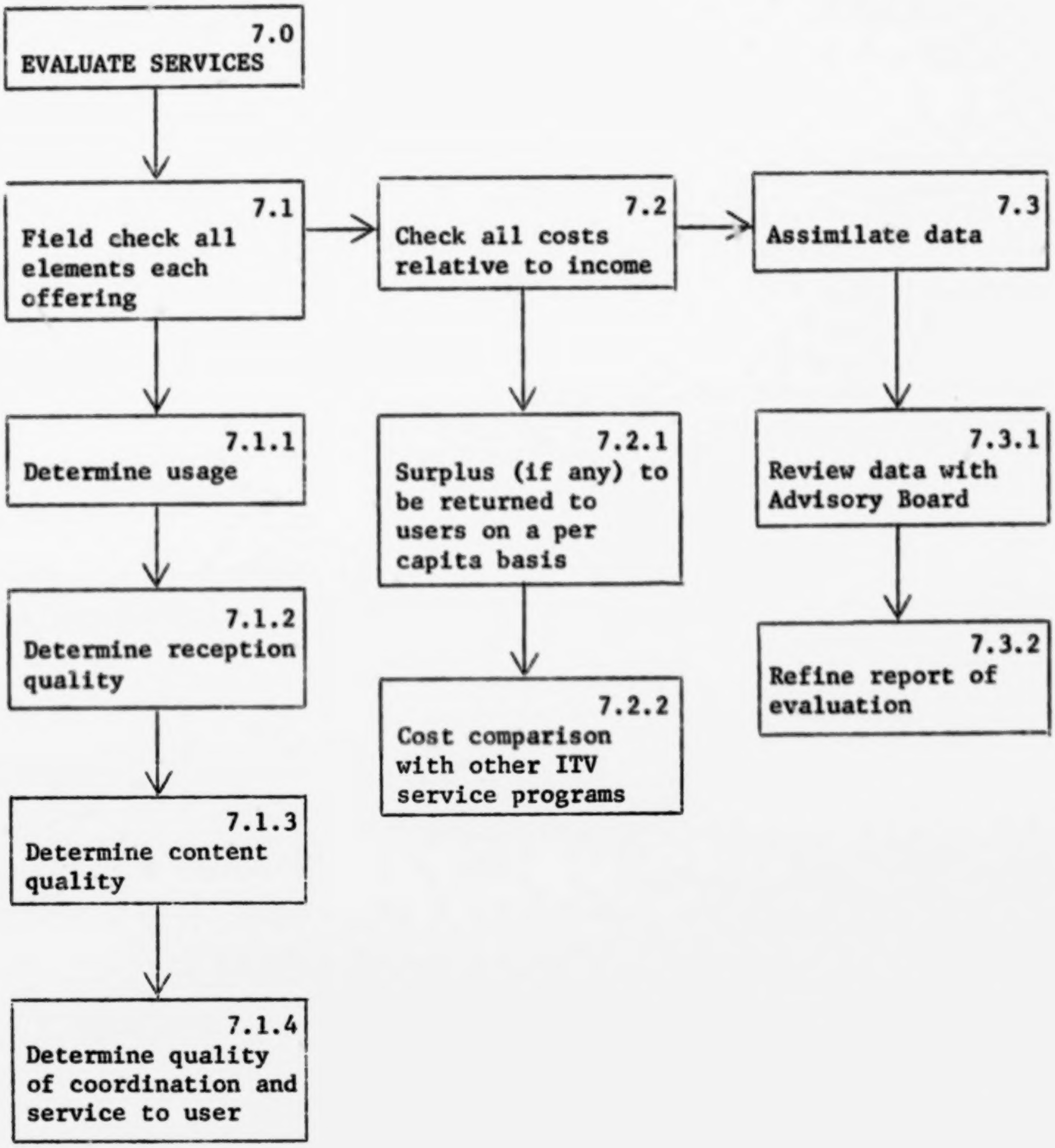

3.4
Determine costs of proposed program schedule
3.5
Refer proposed schedule to Advisory Committee
3.6
Refer schedule to Governing Board for adoption
3.4.1
Cost out use of previously produced desirable programs
3.5.1
Advisory Committee review and alter as desired and pass
3.6.1
Board adopt for referral to consumers
3.4.2
Cost out production of new desired programs
To 5.0 as information

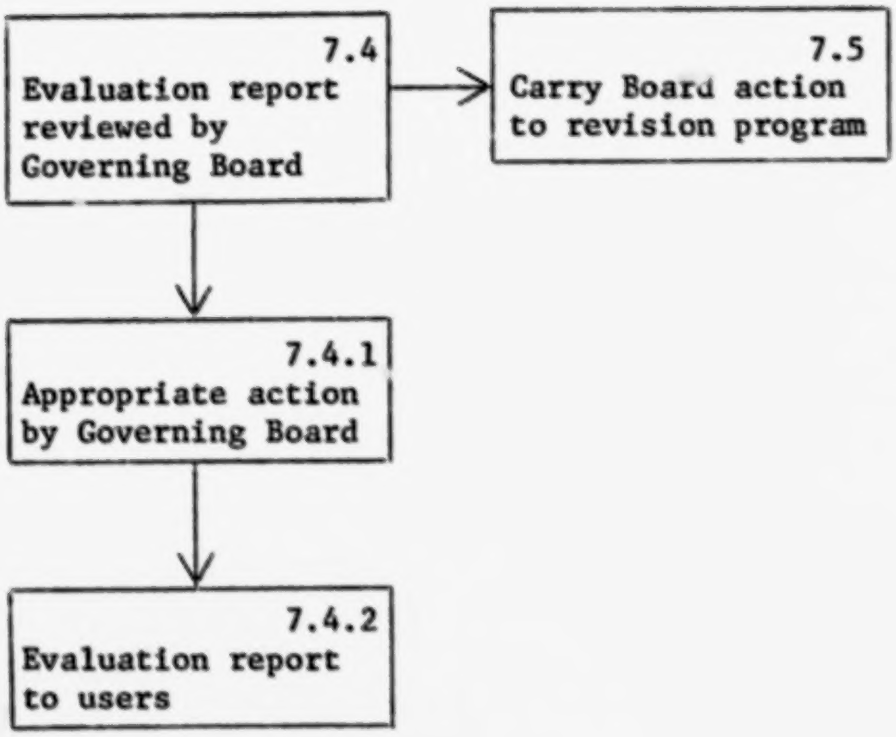

4.0
SECURE PROGRAM APPROVAL BY USERS
Information Needed Prior
To Executing 1.6
and 6.0
4.1
Hold 13 county-wide meetings to describe program content, development, and use
4.2
Secure tentative commitment from users pending final pricing of service
4.3
Determine feasibility of continuing program based on subscriptions
4.4
Advise Board, Advisory Committee and users of results
4.1.1
Provide descriptive literature to all potential users
4.2.1
Determine number of area-wide participants
4.2.2
Determine county superintendent's contribution to the service


Input from 3.4.2
5.0
OBTAIN SUBSCRIPTIONS (CONTRACTS) WITH ALL USERS
5.1
Secure final program development cost
5.2
Forward final contracts to users
5.3
Receive final approval contracts
5.3.1
Tabulate income
Information to
1.6 and 6.0
5.1.1
Secure final program purchase/royalty costs
5.1.2
Secure final broadcast time costs
5.1.3
Secure final staff and operational costs
5.1.4
Develop final budget and service costs per pupil
5.1.5
Submit budget and costs to Advisory Committee for review
5.1.6
Submit budget and costs to Governing Board for approval


Input from 4.4
6.0
IMPLEMENT PROGRAM
6.1
Advise all potential producers and broadcasters of program specifications
6.2
Secure bids to perform services
6.3
Award contracts for services
6.1.1
Programming to be segmented by area to be served
6.2.1
Bids by production or broadcast
6.3.1
Award production contracts
6.1.2
Quantity, quality and hours of broadcast to be specified
6.2.2
Bids by area and quantity
6.3.2
Award broadcast contracts


6.4
Initiate production and programming
6.5
Evaluate for revision in future
6.4.1
Establish progressive payments for work performed
6.5.1
Continuous check against specifications


7.0
EVALUATE SERVICES
7.1
Field check all elements each offering
7.2
Check all costs relative to income
7.3
Assimilate data
7.1.1
Determine usage
7.1.2
Determine reception quality
7.1.3
Determine content quality
7.1.4
Determine quality of coordination and service to user
7.2.1
Surplus (if any) to be returned to users on a per capita basis
7.2.2
Cost comparison with other ITV service programs
7.3.1
Review data with Advisory Board
7.3.2
Refine report of evaluation



7.4
Evaluation report reviewed by Governing Board
7.5
Carry Board action to revision program
7.4.1
Appropriate action by Governing Board
7.4.2
Evaluation report to users

DEVELOPING A PROGRAM IN FAMILY LIFE EDUCATION

James Nelson
Assistant Director
Educational Planning Center Contra Costa County
Superintendent of Schools

INTRODUCTION

The strategy for educational change, as outlined this morning by Dr. Everett M. Rogers, comes very close to the practices used, and the plans which were developed for this project in Family Life Education. Dr. Rogers outlined three strategies: (1) identify a felt need, as seen by practitioners, (2) create an educational structure to facilitate change, and (3) increase the practitioner's ability to utilize the results of research. This project in Family Life Education qualifies on all of these strategies.

In reporting to you, today, I would like to draw some conclusions and make some observations about systematizing planned change as it occurred in this project prior to commenting about the specific program. My first observation is that it is difficult to talk about system analysis in education as an abstract idea. One has the feeling that everything has already been said; that all the questions have already been asked, and that somewhere in our vast educational establishment, all the answers are to be found. This may be true, but, for the educational planner, James Thurber's maxim that, "It is better to know some of the questions than all of the answers," seems to have special pertinence.

A second observation is that system analysis can resolve some very practical problems in developmental projects. This project had its false starts, mistakes in design, mishaps, and short views in much the same manner as any other experimental science. Through system analysis techniques, these problems were resolved, and the final application and curriculum guides were greatly strengthened.

Another observation relates to the use of system analysis in dealing with educators. During the past year, members of the Planning Staff in Contra Costa County have been participants in _Operation PEP_. In addition, we had a one-week session of _P.E.R.T._ I had the opportunity to participate in a three-day seminar on _Fault Tree Analysis_ sponsored by the Alameda County PACE Center. It could be suggested that we have been _systematized_. In addition, the staff participated in the _N.E.A. National Training Laboratories_ at Lake Arrowhead where we received sensitivity training. My profound observation on the sum total of these preparations for planning activities, after a year's experience, is that they can play a significant role in project development, especially where groups of people are involved, but that, at the current level of the state of the arts in systems and sensitivity, it is better not to identify either capability when you start working with individuals and groups in project planning and development. Instead, use the techniques of system analysis and sensitivity to ask the questions necessary for systematic development, and force these individuals and groups into a logical organization of the mission, functions and tasks. This type of application of the science and technology of system analysis by an educational planner can be very valuable in helping other educators with complex and interrelated issues.

A final observation relates to overdependence upon the expert. While system analysis comes to us from engineering, engineers are not going to solve the problems of education. Instead, educators, who are system analysts, are the ones who can extend, or invent, analytic approaches to educational problems. As we adapt analytic techniques to the examination of problems in education, the educator-analyst must not isolate himself from those educators who are intimately familiar with the facts, lore and spirit of the operation to be planned and evaluated. The educator-analyst needs help. The analyst must have input from the participants in the system under study in developing a simulation, or attempting an optimal allocation of resources, or specifying performance or behavioral criteria. Essentially, important developmental work (devising new models, identifying criteria and incorporating an awareness of a value system) is a team task. The educator-analyst is a necessary member of that team; but in order to be an effective change agent, the educator-analyst must be able to ask the questions and be a good listener to the answers.

FAMILY LIFE EDUCATION PROJECT

The development of this Family Life Education project has been an interesting study in the application of planned change. In many instances, the techniques acquired in Operation PEP can be readily identified. Some of the obvious references were: control of change, a blueprint for achievement, organized planning, continuous assessment of present needs and prediction of future needs, sensing, awareness of changing needs, definition and redefinition of problems and solutions, analysis and synthesis, continuous evaluation of process and product, and goal-directed activities. As project coordinator, I had the analyst's responsibilities. The various individuals and groups involved in the development of this proposal were highly responsive to system analysis and synthesis techniques.

NEED ASSESSMENT

The project was initiated by a variety of need identification statements that were submitted to the Educational Planning Center in the areas of sex education, comprehensive health education, sociology of the family, venereal disease, etc. These ideas were discussed by the Executive Committee of the Educational Planning Center and the members of the Advisory Council. A project in this general area was given first priority for development. The County Board of Education and the County Superintendent's Administrative Council concurred in the need to develop a project in this area of the curriculum.

PROJECT DEVELOPMENT

With this authorization to proceed, a Steering Committee for the project was selected. This Committee was made up of those who had submitted need identification statements in this problem area and other curriculum leaders in the county who had a special interest in this project. At the initial meeting, this Committee was asked to specify the mission and functions for the program. After considerable discussion and iteration, the mission was determined.

MISSION: To enable the Contra Costa County Department of Education to supply service and leadership to local school districts and private and parochial schools in developing programs in Family Life Education that would include sex education, sociology of the family, and family physical and emotional health content.

Many of the performance specifications and operational constraints were identified at this stage. Success criteria were identified in the following statement:

> The program's success will be measured in terms of the number of successful local school programs generated, the number of teachers prepared to teach Family Life Education, the community acceptance of the program at the end of three years, and the longitudinal results appear as decreases in the social maladjustments in society.

This Steering Committee nominated several people from different administrative and teaching roles to participate on the Project Development Work Committee. The Project Development Work Committee had the responsibility of conducting a feasibility study and preparing the final program. Periodic reports and review by the Steering Committee were planned.

The Project Development Work Committee was composed of four members. A guidance consultant for a high school district was appointed as chairman. The other three members of the Committee were a secondary teacher of home economics involved in teaching a pilot program in Sociology of the Family; an intermediate level teacher-counselor who is teaching a pilot sex education program; and a school nurse who has pioneered in promoting sex education at the elementary level. Consultants were obtained to provide special help to the Committee as need developed.

The initial effort of the Project Development Work Committee was directed towards selecting solution alternatives. A unique feature of the Educational Planning Center is the availability of a research librarian who has developed a system for making the latest research available for project development. A thorough review of the literature revealed many possible solutions to the problems. In addition, visitations were arranged to outstanding programs in California, which proved to be extremely valuable in developing the project. Another activity which proved very valuable was a series of student group interviews which gave evidence of their perception of the need for the program and which brought out their recommendations for areas to be covered in Family Life Education.

PROGRAM MODIFICATIONS

These findings were referred to the Steering Committee for evaluation. Through this feedback, the direction of the program was constantly modified. Two major changes illustrate the value of iteration. The program was originally classified as sex education and health education. However, the literature review, the consultations and visits, and the student interviews indicated that the program in Family Life Education should include sex education, sociology of the family and the aspects of emotional and physical health as they influence the family.

Another modification in the program came about by iteration. We had concluded that each school system (public, private and parochial) should involve the professional staff and the community in developing its own program. However, the Education Council of Contra Costa County (curriculum leaders) requested that a guide be prepared to supply them with a recommended articulated series of instructional units, K-12. It was suggested that our work in project development would be very valuable to them in development of a local program. Consequently, the Project Development Work Committee will submit a comprehensive guide to each school system in the county as a product of this project's development to be used as a "rough draft" for developing each school system's program.

Another significant modification related to our recommendations on the type of teacher involvement in Family Life Education. Much of the encouragement for programs in this area has been supplied by home economics teachers and school nurses. However, it became apparent that the major responsibility for the program should be assigned to social studies departments with special help from nurses, home economists, science and physical education teachers.

The specific dimensions of the Family Life Education program that resulted were:

1. A county-wide project director and staff to provide coordination and leadership.
2. A county materials resource center to provide a professional library collection, a collection of curriculum materials and courses of study, and supplemental audio-visual materials.
3. The development of a recommended articulated series of instructional units, K-12, using appropriate knowledge, understandings, and skills from many subject matter fields.
4. An in-service education program for teachers: institutes, workshops, classroom visitations, and college courses.
5. Expert consultants to be made available to school districts, agencies and groups for program development, and community involvement.
6. A program to involve community agencies and groups in establishing the climate for the development of an adequate program (the support of the clergy, medical, legal, and other professions seems to be fundamental to the development of this program.)

An appropriate tribute to the community involvement and systematic planning of this program was made at the final meeting of the Steering Committee. It was suggested that, regardless of the fate of the application for Federal funds to initiate the program, an awareness of the need for this program had been advanced by at least ten years in Contra Costa County.

MISSION:

To enable the Contra Costa County Department of Education to supply service and leadership to local school districts and private and parochial schools in developing programs in Family Life Education that would include sex education, sociology of the family, and family physical and emotional health content.

PERFORMANCE SPECIFICATIONS:

1. Each school system must develop its own program. The County service should have general applicability and flexibility in terms of time, money, and depth of instruction.
2. The programs must be responsive to needs of local school systems in providing in-service training programs, use of consultants, use of curriculum materials, levels of performance, and must be adjustable to a wide range of school situations.
3. The programs must be responsive to community attitudes and commitment levels of educators in each school system.

OPERATIONAL CONSTRAINTS:

1. Community support and educator commitment to Family Life Education in local school systems.
2. Teacher sophistication as related to knowledge of subject and teaching techniques.
3. Some local school system support in time and money will be required.

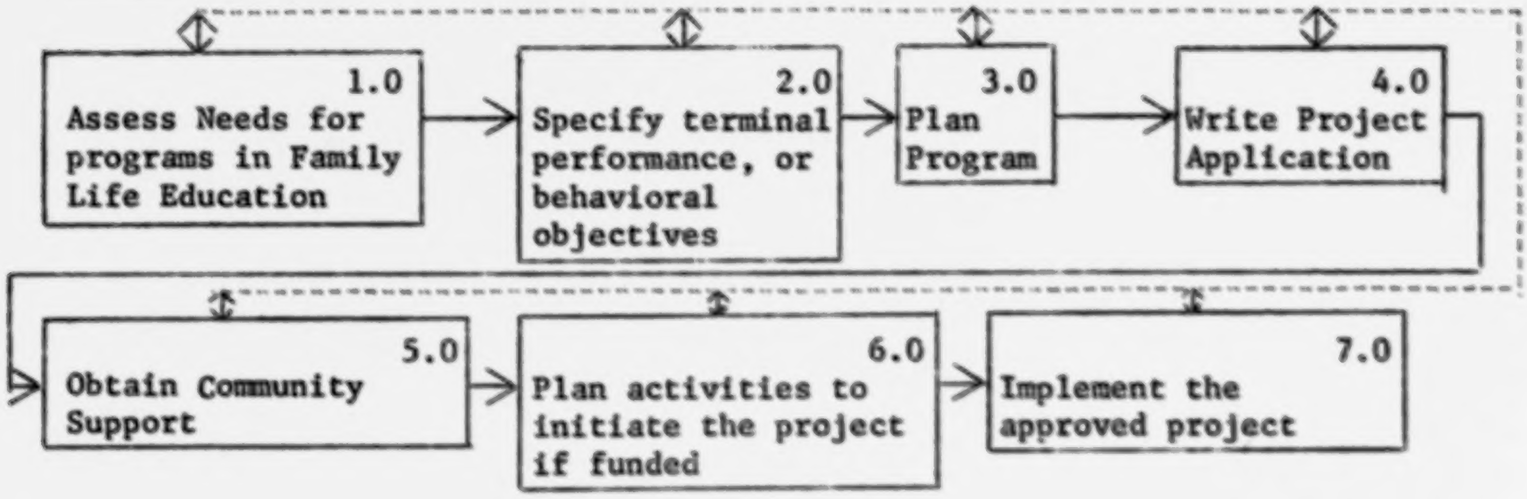
SUCCESS CRITERIA:

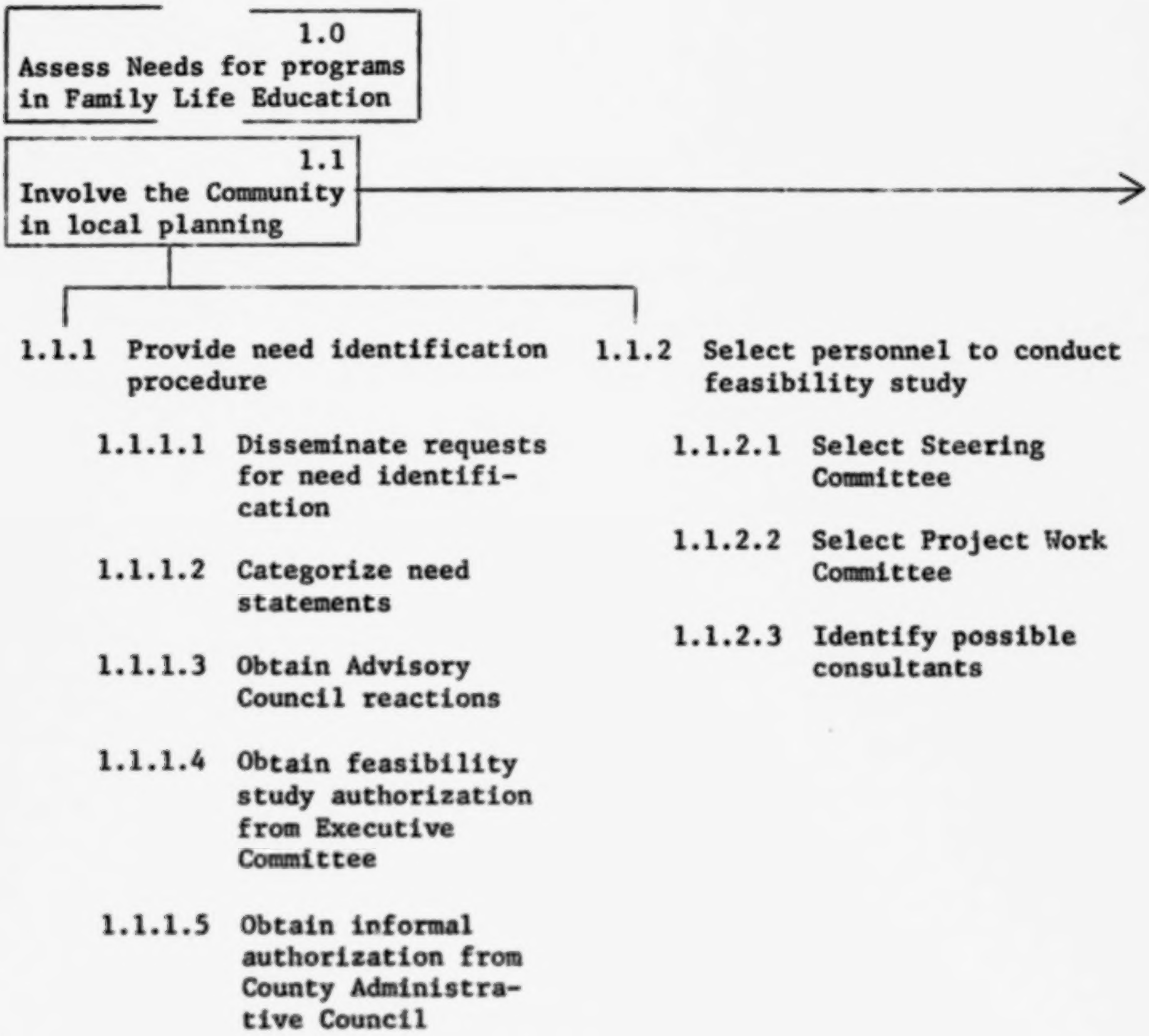
The program's success will be measured in terms of the number of successful local school programs generated, the number of teachers prepared to teach Family Life Education, the community acceptance of the program at the end of three years, and the longitudinal results that appear as decreases in the social maladjustments in society.

MISSION:

To enable the Contra Costa County Department of Education to supply service and leadership to local school districts and private and parochial schools in developing programs in Family Life Education, to include sex education, sociology of the family, and family physical and emotional health content.

MISSION PROFILE:

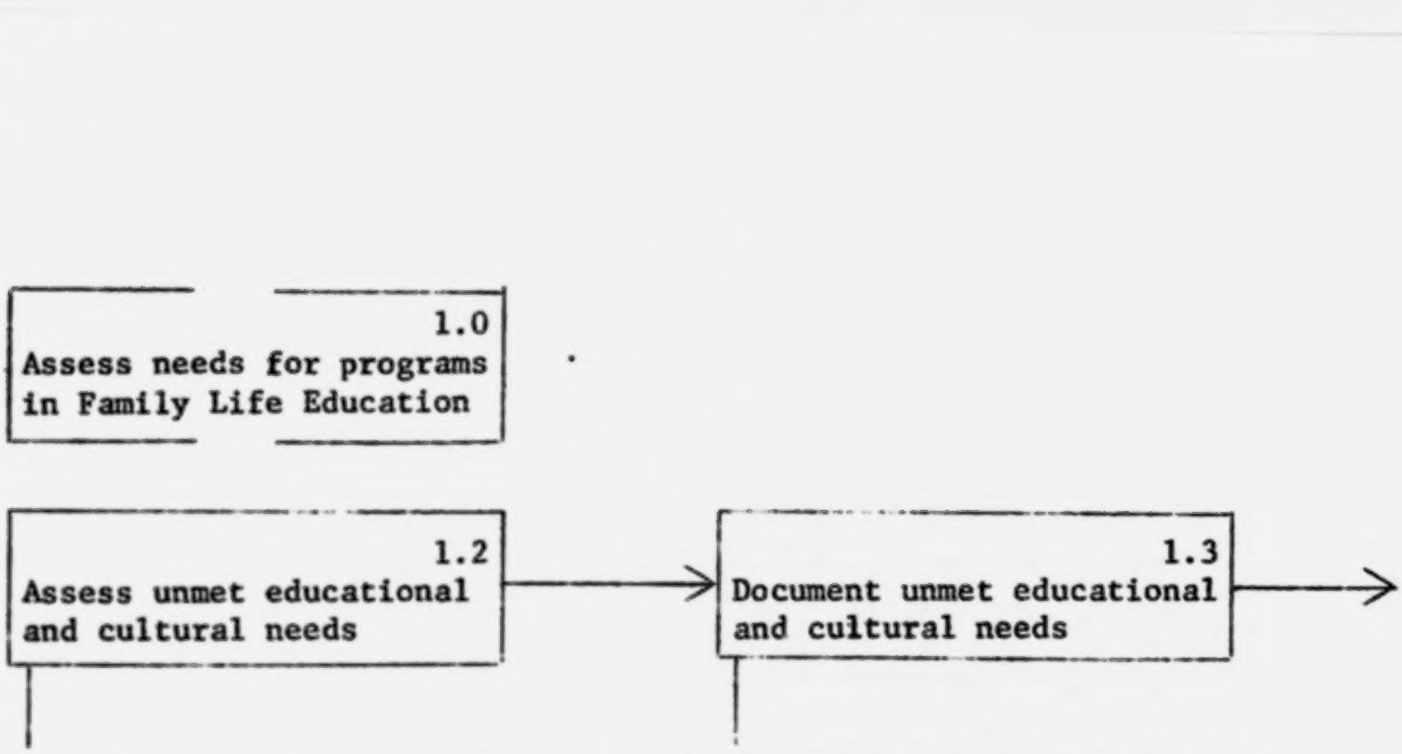

1.0
Assess Needs for programs in Family Life Education
2.0
Specify terminal performance, or behavioral objectives
3.0
Plan Program
4.0
Write Project Application
5.0
Obtain Community Support
6.0
Plan activities to initiate the project if funded
7.0
Implement the approved project



1.0 Assess Needs for programs in Family Life Education

1.1 Involve the Community in local planning

- 1.1.1 Provide need identification procedure
  - 1.1.1.1 Disseminate requests for need identification
  - 1.1.1.2 Categorize need statements
  - 1.1.1.3 Obtain Advisory Council reactions
  - 1.1.1.4 Obtain feasibility study authorization from Executive Committee
  - 1.1.1.5 Obtain informal authorization from County Administrative Council
- 1.1.2 Select personnel to conduct feasibility study
  - 1.1.2.1 Select Steering Committee
  - 1.1.2.2 Select Project Work Committee
  - 1.1.2.3 Identify possible consultants


1.0
Assess needs for programs in Family Life Education
1.2
Assess unmet educational and cultural needs
1.3
Document unmet educational and cultural needs

1.2.1 Identify social maladjustments related to problem in Contra Costa County

- 1.2.1.1 Obtain number of illegitimate births
- 1.2.1.2 Estimate number of abortions
- 1.2.1.3 Obtain number of neglected, abused, exploited and cruelly treated children
- 1.2.1.4 Obtain juvenile delinquency rate
- 1.2.1.5 Obtain venereal disease rate
- 1.2.1.6 Obtain suicide and attempted suicide rate
- 1.2.1.7 Estimate drug abuse rate
- 1.2.1.8 Estimate alcoholism rate
- 1.2.1.9 Estimate homosexuality rate
- 1.2.1.10 Estimate school drop-out rate

1.3.1 Identify lack of properly trained teachers

1.3.2 Assess adequacy of instructional materials

1.3.3 Identify lack of appropriate recommended articulated series of instructional units, with total scope and sequence

1.3.4 Identify lack of financial resources

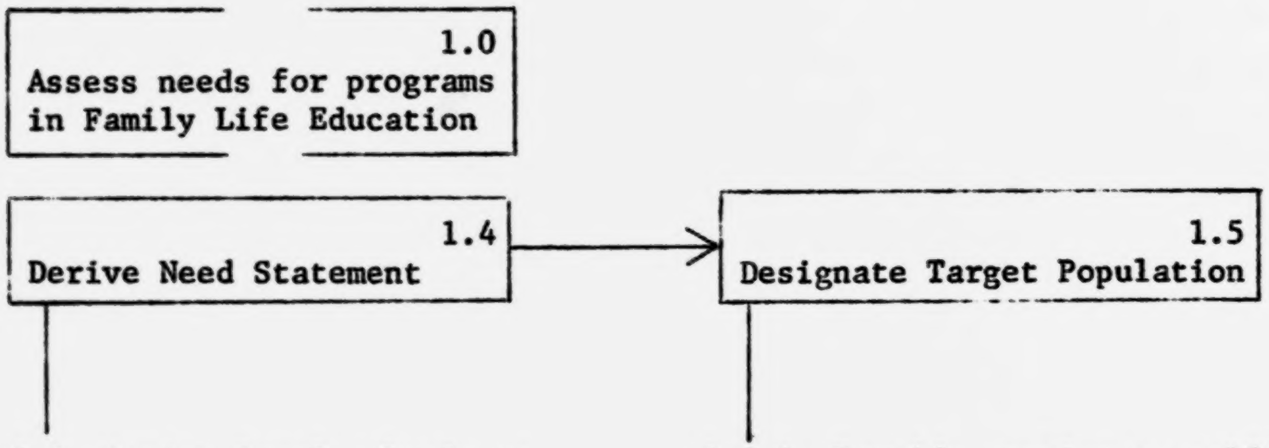
1.3.5 Identify lack of leadership and coordination for program

1.3.6 Identify lack of appreciation of need on part of public, school administrators and teachers

1.3.7 Assess fragmented public support for program

1.3.8 Identify controversial nature of problem

1.3.9 Identify problem of articulation between elementary and secondary school districts

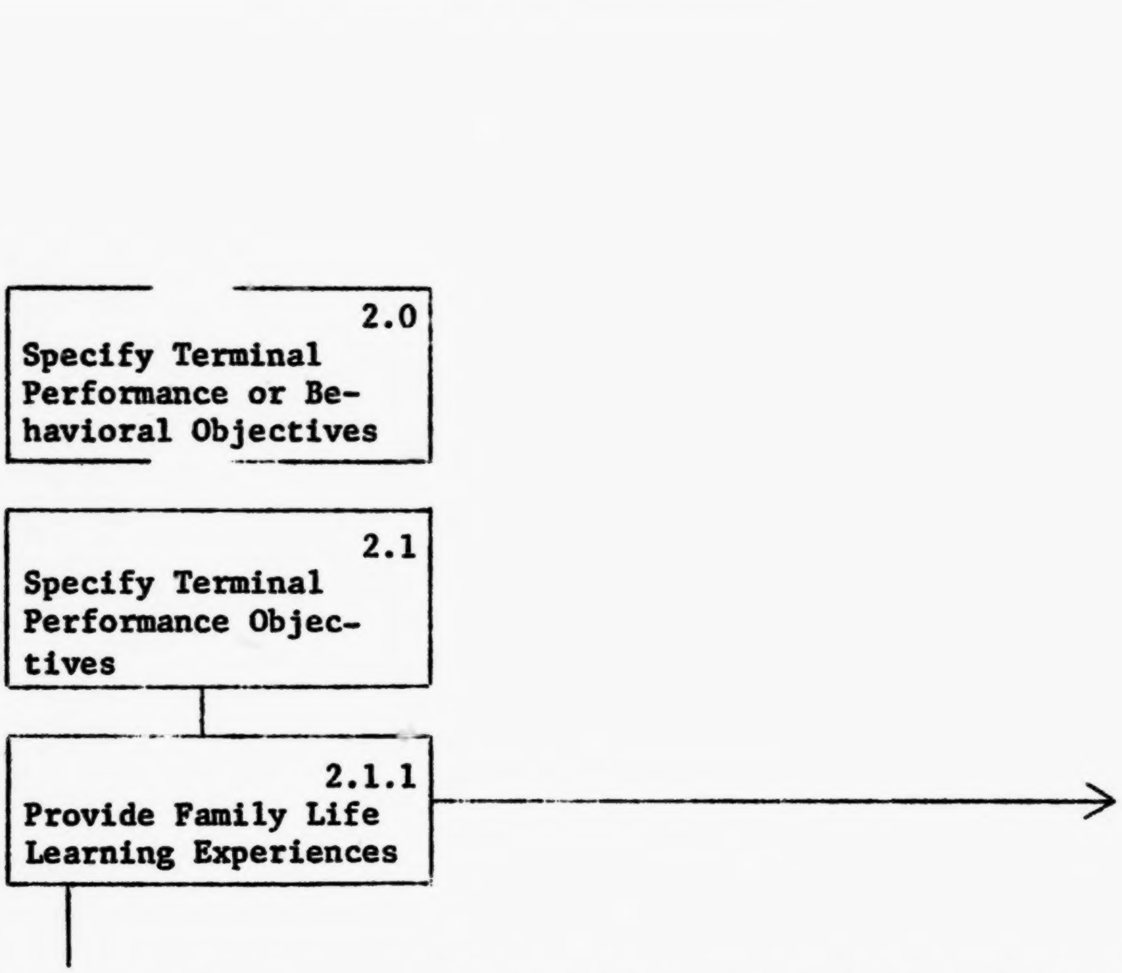

1.0
Assess needs for programs in Family Life Education
1.4
Derive Need Statement
1.5
Designate Target Population

1.4.1 Assist local schools to develop and carry on programs in Family Life Education

1.4.2 Develop a series of articulated resource units of instruction

1.5.1 Provide service to public school districts of county, as requested

1.5.2 Provide services to private and parochial schools of county, as requested


2.0
Specify Terminal Performance or Behavioral Objectives
2.1
Specify Terminal Performance Objectives
2.1.1
Provide Family Life Learning Experiences

2.1.1.1 Develop mental health elements of family relationships

2.1.1.2 Help understand healthy sexuality

2.1.1.3 Encourage understanding of personal responsibility and ethical behavior

2.1.1.4 Develop attitudes to help plan for successful marriage

2.1.1.5 Develop understanding of conception, pregnancy and pre-natal care

2.1.1.6 Help understand problems of population explosion and planned parenthood

2.1.1.7 Provide information on infant and child care including psychological and physical growth

2.1.1.8 Develop basic understandings of self-respect and personal health related to:
  2.1.1.8.1 self-concept
  2.1.1.8.2 nutrition
  2.1.1.8.3 immunization
  2.1.1.8.3 first aid
  2.1.1.8.3 accident prevention
  2.1.1.8.3 drug abuse
  2.1.1.8.3 alcohol

2.1.1.9 Explain sound family budgeting and security investment

2.1.1.10 Understand management of family time and energy

2.1.1.11 Understand community and social agencies which service individual and family needs

2.1.1.12 Understand the aging process and geriatric care

2.1.1.13 Explore occupational alternatives and vocational choices as related to family life

2.1.2
Provide a Comprehensive Program in Family Life Education

2.1.2.1 Provide instruction on the sociological problems of individual and family life

2.1.2.2 Provide a demonstrative, exemplary, exportable series of articulated resource units of instruction

2.1.2.3 Establish a central resource for these diversified instructional units and materials

2.1.2.4 Employ expert consultants to work with teachers and community agencies

2.1.2.5 Stimulate articulation between elementary and secondary schools in program planning

2.1.2.6 Encourage school administrator and teacher participation in program development

2.1.2.7 Provide in-service training of teachers to implement appropriate instruction

2.1.2.8 Compile an inventory of existing instructional material and programs in this subject field from throughout the county, state and nation

2.1.2.9 Promote informed public support for the program

3.0
Plan Program

3.1
Derive Solution
Method Alternatives

3.1.1 Develop a recommended series of articulated instructional units, K-12, using appropriate knowledge, understandings, and skills from many subject matter fields

3.1.2 Conduct an extensive inventory of the numerous diverse efforts now being made in the county, state and nation regarding family life education

3.1.3 Coordinate these efforts to improve the shared use of knowledge and material and to reduce duplication of effort expended

3.1.4 Stimulate staff interest in curriculum development and train teachers for family life education instruction in participating districts

3.1.5 Communicate to the communities and the schools the need for family life education

3.1.6 Encourage community concern, aid and action by community leaders in establishing this program

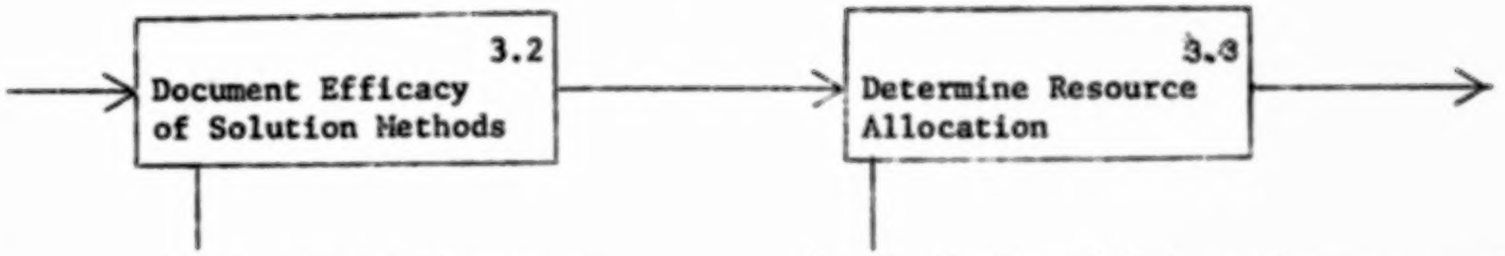
3.1.7 Involve full participation and communication with parent-teacher associations, church groups, youth groups, service agencies, community service groups and all public social service institutions

3.1.8 Develop model programs of instruction to be adapted for local use:

  3.1.8.1 employ such consultant services and related directional activities as will enhance the objectives of the program

  3.1.8.2 encourage the establishment of pilot projects in school districts

  3.1.8.3 encourage "spin-off" pilot projects by school districts


3.2
Document Efficacy of Solution Methods
3.3
Determine Resource Allocation

3.2.1 Review literature

3.2.2 Obtain curriculum materials

  3.2.2.1 Visit outstanding programs
  3.2.2.2 Correspond with national leaders
  3.2.2.3 Identify local programs

3.2.3 Interview consultants

3.2.4 Interview students

3.3.1 Employ administrative personnel and specialists for specific assignments

3.3.2 Provide funds for instructional resources and in-service instruction to organize, develop and coordinate the total program

3.3.3 Form an advisory committee (representing all concerned educational, community, and social service organizations)

3.3.4 Develop a cooperative working relationship with major teacher education centers in the area

3.3.5 Implement meaningful teacher in-service programs K-12

3.3.6 Develop model programs for courses of study for grades K-12

3.3.7 Identify and evaluate existing materials and programs pertinent to the project

3.3.8 Provide for supplementing the resource materials in the existing county library and audio-visual centers

3.3.9 Employ consultants to work with individual teachers or teaching teams as individual school systems or school needs require

3.3.10 Disseminate information on all facets of the program

3.4
Develop Evaluation Program

3.4.1 Provide pre- and post-tests for students, teachers, and parents involved in pilot district activities

3.4.2 Survey participating community agencies over a period of time to determine any behavioral changes in clientele of these agencies that might be affected by this project

3.4.3 Provide a special evaluation sub-team of psychologists, sociologists, teachers, testing specialists and selected community representatives

3.4.4 Evaluate attitudinal and behavioral changes (Every facet of the project will have some form of evaluative follow-up and report.)

3.4.5 Employ testing firms or authorities to provide sufficient direction to enable evaluation to proceed effectively

3.4.6 Measure the number of successful local district programs generated

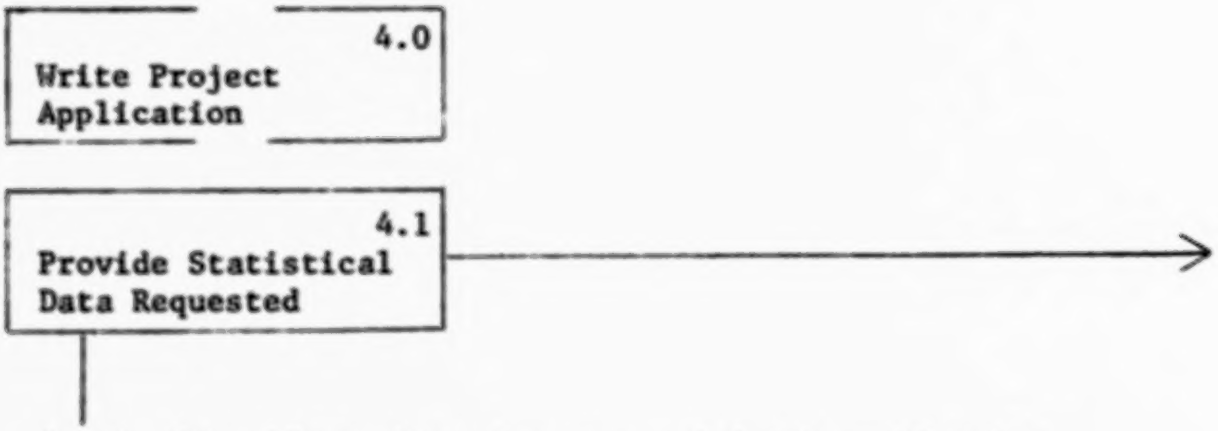
3.4.7 Measure the results that appear as decreases in such things as venereal disease rates, high school pregnancies, and the like

3.4.8 Measure number of teachers trained

3.4.9 Measure satisfaction of parents, students and teachers with the program

3.4.10 Measure response of the districts to the specific services offered

3.4.11 Evaluate the scope and quality of programs developed with the service



4.1.1 Identify application type - initial application

4.1.2 Describe project and anticipated activities

  4.1.2.1 Indicate major description type - adaptive

  4.1.2.2 Indicate anticipated activities

    4.1.2.2.1 Conducting pilot activities

    4.1.2.2.2 Operating a program

4.1.3 Provide requested project information

  4.1.3.1 Present project resume

  4.1.3.2 Provide applicant information

4.1.4 Provide political, population, and local data

  4.1.4.1 Specify political information requested

  4.1.4.2 Specify student population information

4.1.5 Detail budget summary

4.1.6 Specify requested facilities requirement

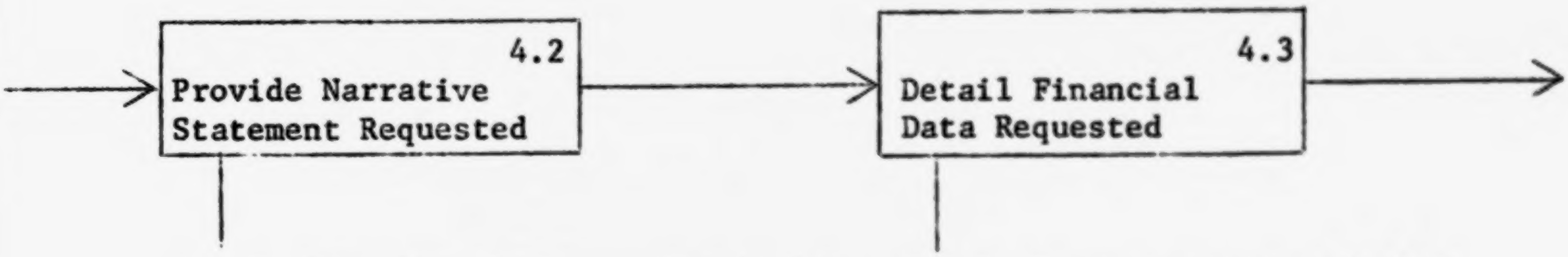
4.1.7 Provide data on school enrollment and project participation

4.1.8 Detail data on ethnic group participation

4.1.9 Provide data on rural/urban distribution of participants

4.1.10 Specify personnel requirements for project administration and implementation

4.1.11 Estimate cost distribution of anticipated services


4.2
Provide Narrative Statement Requested
4.3
Detail Financial Data Requested

4.2.1 Describe the community to be served

4.2.2 Detail a statement of need

4.2.3 Delineate the project objectives

4.2.4 Specify procedures to be followed

4.2.5 Identify primary emphasis of project

4.2.6 Describe project planning procedure

4.2.7 Describe participation by non-public school children

4.2.8 Detail plan of evaluation

4.2.9 Describe provisions for dissemination

4.2.10 Detail qualifications of required professional personnel

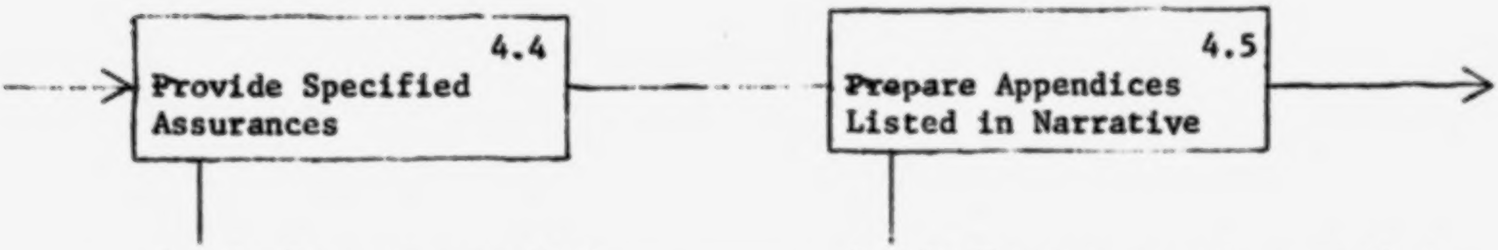
4.2.11 Describe facilities, equipment and materials needed

4.2.12 Provide required information on subcontracting

4.3.1 Prepare proposed budget summary

4.3.2 Present specified attachments

4.3.3 Consult financial and budget references


4.4
Provide Specified Assurances
4.5
Prepare Appendices Listed in Narrative

4.4.1 Prepare specified assurances

4.4.2 Obtain specified signatures

4.4.3 Consult Title III manual, and amendments

4.5.1 Prepare report on student group interviews

4.5.2 Abstract programs visited by committee

4.5.3 Review researched state and national programs

5.0
Obtain Community Support

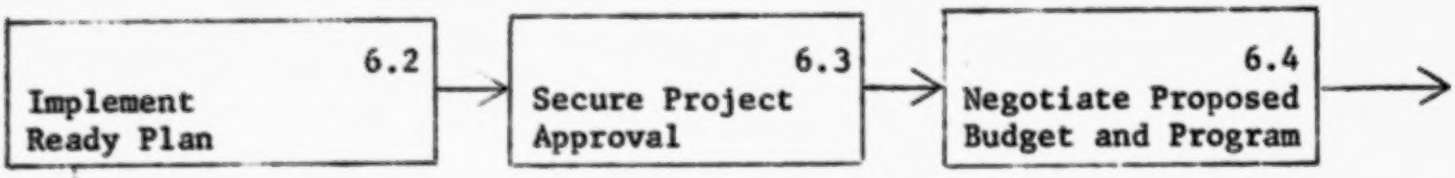
5.1
Secure Local Commitment

- 5.1.1 Obtain approval of Steering Committee
- 5.1.2 Obtain critique of consultants
- 5.1.3 Obtain endorsement of Executive Committee
- 5.1.4 Obtain local board resolutions
- 5.1.5 Obtain private and parochial school endorsements
- 5.1.6 Obtain support of community agencies and organizations
- 5.1.7 Obtain County Board of Education approval

6.0
Plan Activities to initiate the Project, if funded

6.1
Submit Project Proposal →

- 6.1.1 Submit appropriate number of copies to U.S. Office of Education
- 6.1.2 Submit appropriate number of copies to State Department of Education


6.2
Implement Ready Plan
6.3
Secure Project Approval
6.4
Negotiate Proposed Budget and Program

6.2.1 Provide position vacancy description

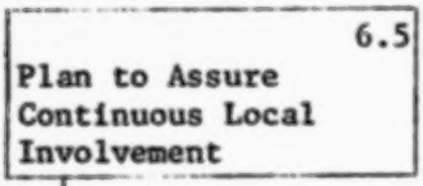
6.2.2 Prepare tentative articulated series of instructional units K-12

6.2.3 Review materials for professional library collection, curriculum materials, courses of study and audio-visual materials

6.2.4 Identify consultants

6.2.5 Involve community agencies and groups

6.2.6 Involve curriculum leaders of district in program


6.5
Plan to Assure Continuous Local Involvement

6.5.1 Disseminate information to all personnel in school and participating agencies associated with the project

6.5.2 Develop descriptive instructional brochures and material for teachers and participating agencies

6.5.3 Provide reports on evaluation findings as they are compiled

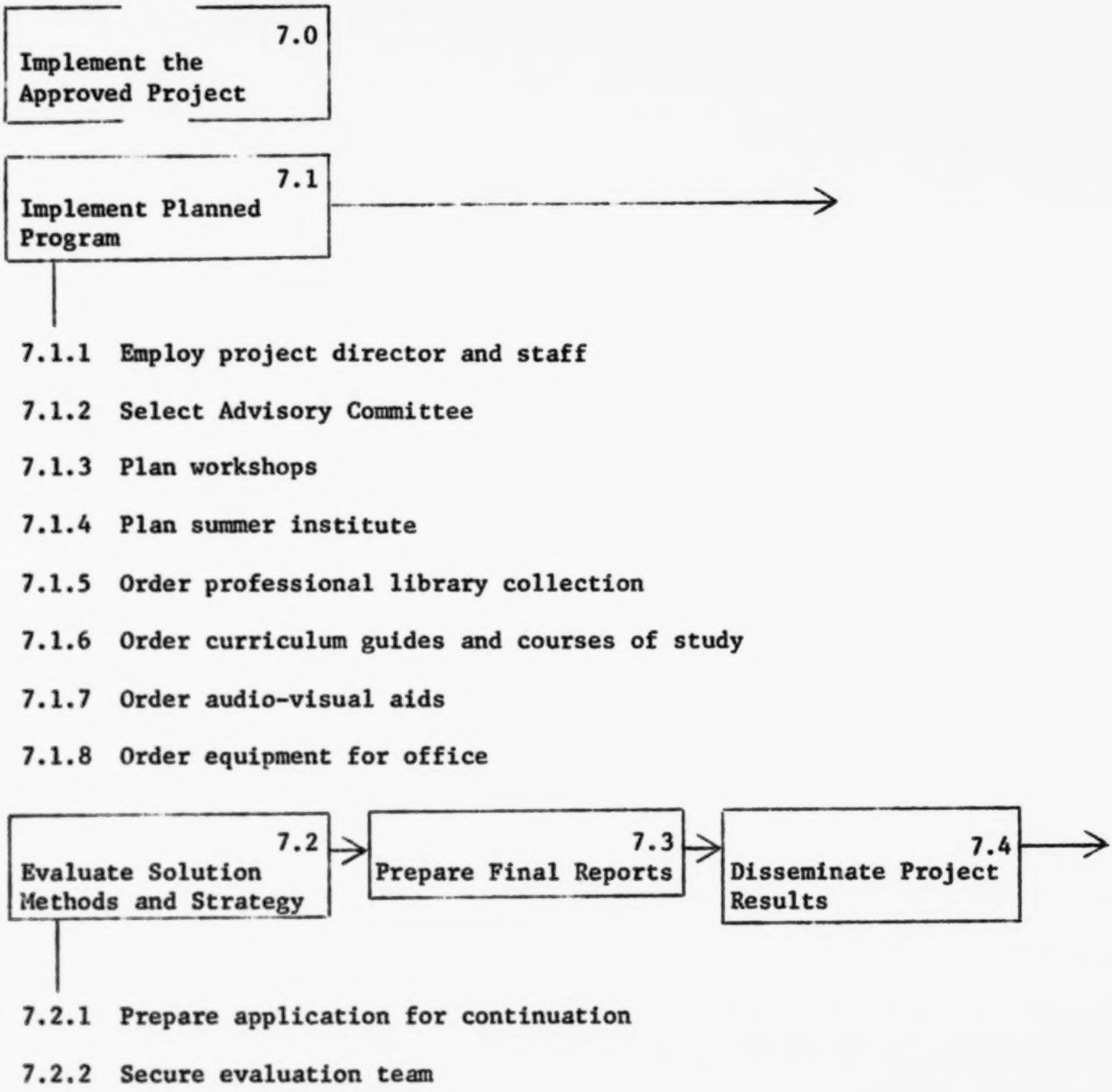
6.5.4 Report to the entire community through the press and special publications

6.5.5 Utilize all existing standard school and commercial communication media (radio, television, school district bulletins, newspapers, and local journals)

6.5.6 Provide for a speakers' bureau with experts capable of making presentations on all or specific facets of the center's activity and focus

6.5.7 Develop a collection of slides, pictures, audio-tape and 8mm, 16mm discriptions which portray aspects of the program for showing to appropriate community and professional groups

6.5.8 Employ, on a part-time basis, a communications specialist


7.0
Implement the Approved Project
7.1
Implement Planned Program
7.2
Evaluate Solution Methods and Strategy
7.3
Prepare Final Reports
7.4
Disseminate Project Results

7.1.1 Employ project director and staff

7.1.2 Select Advisory Committee

7.1.3 Plan workshops

7.1.4 Plan summer institute

7.1.5 Order professional library collection

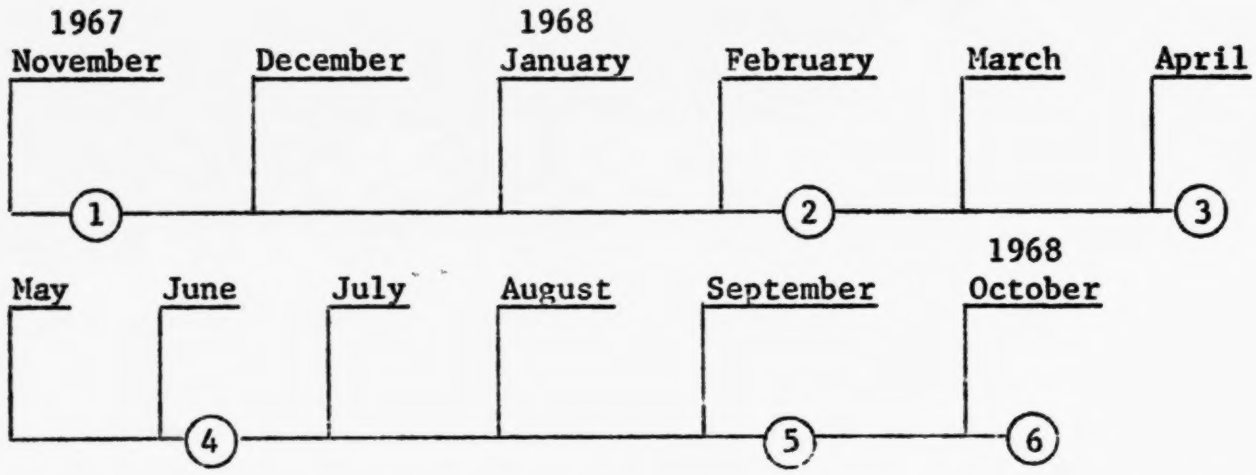
7.1.6 Order curriculum guides and courses of study

7.1.7 Order audio-visual aids

7.1.8 Order equipment for office

7.2.1 Prepare application for continuation

7.2.2 Secure evaluation team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MILESTONES

①-② Program initiated with Project Director, Advisory Council and Clinical Staff. Selection and ordering of materials resources for a professional library collection, curriculum materials and audio-visual materials.

②-③ Local districts encouraged to organize and conduct workshops for educators and community development programs, with consultants, materials and services provided by the county supplementary service.

③-④ Plan summer institutes for educators, contract for consultants, and select participants.

④- 5 Conduct institute for educators.

⑤-⑥ Evaluate program and initiate planning for next year's program to follow same sequence.

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Initial application requests funds to continue the program for two additional years: November, 1968 - October, 1969 and November, 1969 - October, 1970. (Sequence of events to be similar.)

DEVELOPMENT OF A PLAN FOR RE-ORGANIZATION
OF
THE OFFICE OF THE SAN JOAQUIN COUNTY SUPERINTENDENT OF SCHOOLS

Ira D. Barkman
and
Edwin P. Lamoreau

School district organization in San Joaquin County, California, has changed greatly in the past five years. Unification elections, with one exception, have been successful, and the number of districts that receive direct services from the County Office has been greatly reduced. With this change has come an accompanying change in funding for the county from state sources. As funds to provide direct services have decreased, there has been some increase in monies to perform activities of a coordinative nature for the newly-formed larger districts. However, the net result has been reduced funding for the office. Therefore, it has become necessary to examine closely the services that the County Office should render to meet the needs of the student population and to plan for office organization that would meet these needs.

With reduced funding, the San Joaquin County Office will not be able to provide all of the services that districts need. A further limitation is inherent in the fact that some county office functions are mandated by state regulations, thereby reducing the number of permissive functions that can be performed. The major goal of the re-organization plan, then, is to ascertain whether permissive functions provided are in line with highest priority district needs and are feasible in terms of funds, personnel, facilities, and equipment that are available.

The problem was brought before a group of PEP participants representing Amador, Calaveras, San Joaquin, Stanislaus, and Tuolumne counties, and the PI Supplementary Education Center, serving the five counties mentioned above. This group has applied system analysis techniques and principles in designing a plan that the San Joaquin County Schools Office could use to provide services consistent with changing needs of districts.

The following pages with the accompanying flow block diagram state the mission, show performance requirements, and outline the major phases of the system.

MISSION STATEMENT: Develop a plan for re-organization of the San Joaquin County Schools Office which:

A. Will meet K-adult student educational needs within San Joaquin County.

B. Will be adopted by the San Joaquin County Board of Education.

PERFORMANCE REQUIREMENTS:

The re-organization plans must:

A. Meet legal requirements

B. Meet Budget Limitations.

C. Provide functions appropriate to highest priority educational needs as determined by:

1. PI survey
2. Committee of 10 report
3. Arthur D. Little report
4. Surveys of local, county, and state agencies

D. Be completed by October 1, 1967.

In developing the plan for re-organization, two major phases of the mission became evident. First, the functions that the County Office should perform to meet district needs were to be determined through careful and systematic analysis. Second, development of a plan of management organization was required to provide for the execution of the functions earlier determined. These two major phases constitute the profile of the mission.

The major phases were further broken down into sub-functions. In Phase 1, these are, in order: (1) identify all possible functions that the County Office might perform; (2) identify the services now being performed and those that are needed to meet district needs; (3) do a match-mismatch study of present and needed functions; (4) develop a function model, which shows those functions that best meet district needs and are feasible to provide; (5) submit model to the County Superintendent for approval or possible revision; and (6) submit model to the County Board of Education for approval or revision.

Phase 2 sub-functions are: (1) identify possible management models; (2) analyze the function model developed in Phase 1 in terms of the management models; (3) do a feasibility study of the management models; (4) select a management model; (5) submit the selected model to the County Superintendent for approval; and (6) submit the selected model to the County Board for approval.

Each sub-function is then analyzed, and the "break-out" is charted on the flow block diagram. Dotted lines indicate feed-back loops that provide for continuous evaluation and re-cycling of activities if necessary.

This analysis plan is currently being utilized in the re-organization study of the San Joaquin County Schools Office. Possible functions have been identified, a survey instrument has been prepared and is currently being utilized with staff members, district personnel, and community agencies. Once data are obtained, the succeeding parts of the mission will be carried out. Present indications are that the mission will be accomplished by the target date (October 1, 1967).

System analysis has proved to be a valuable tool in the accomplishment of the mission and its accompanying goals to date. It has helped those involved to set desired goals and to detail all necessary activities in reaching them, as well as to provide opportunity for continuous evaluation during the course of the mission.

PEP personnel responsible for the development of this project were:

Ira D. Barkman
John F. Bahnsen
Harold Clark
William Reynolds
Joseph Howard
Roger Chapman
George Clary
John Sellers
Kenneth Spencer
Edwin P. Lamoreau

MISSION: Develop a plan for reorganization of the San Joaquin County Schools Office which:

1. Will meet K-14 student educational needs within San Joaquin County, and
2. Be adopted by the San Joaquin County Board of Education.

PERFORMANCE REQUIREMENTS: The reorganizational plan must:

1.1 Meet legal requirements

1.2 Meet budget limitations

1.3 Provide functions appropriate to highest priority educational needs as determined by:

  1.3.1 PI survey

  1.3.2 Committee of Ten report

  1.3.3 Arthur D. Little report

  1.3.4 Surveys of local, county, and state educational agencies

1.4 Be completed by October 1, 1967

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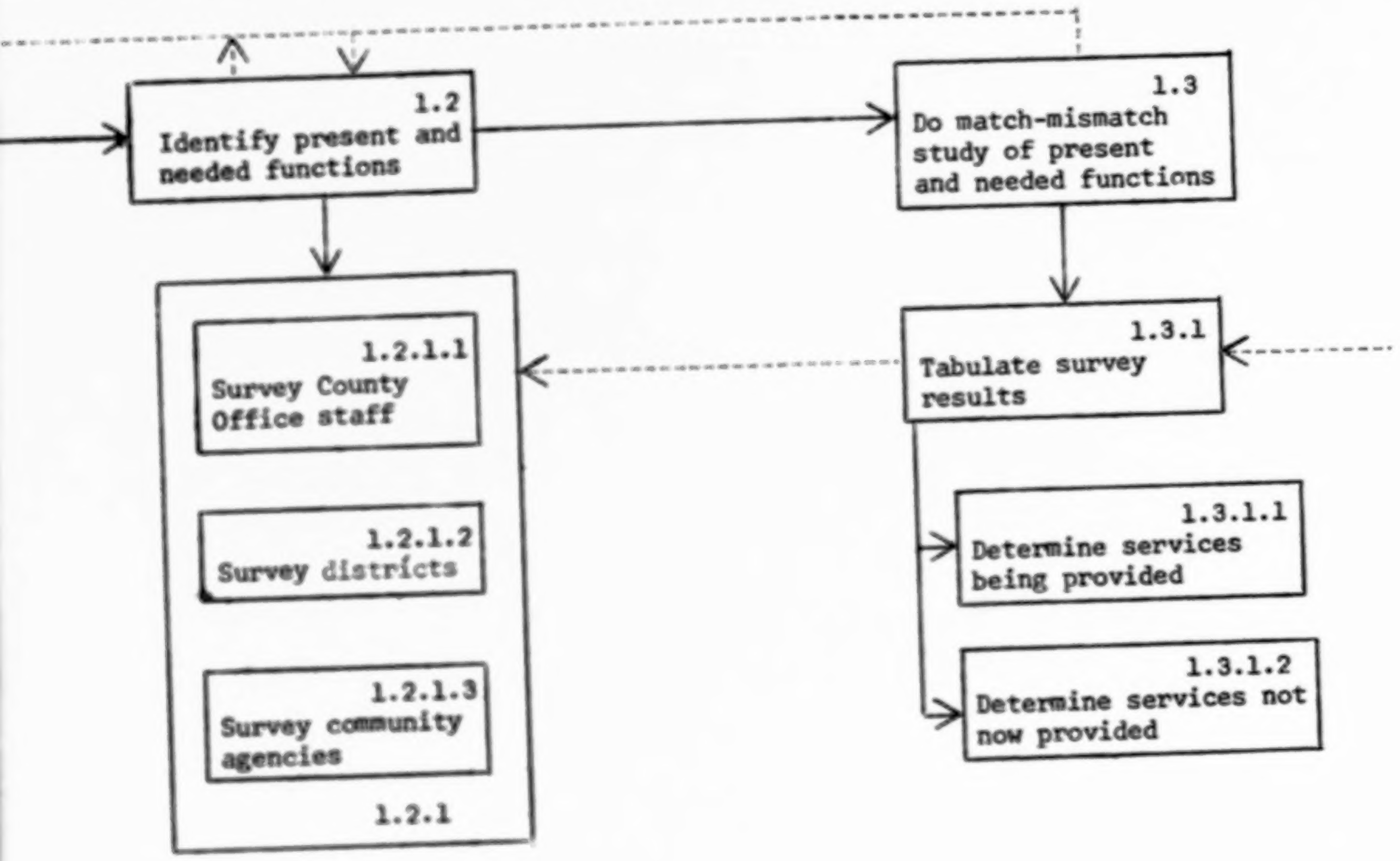
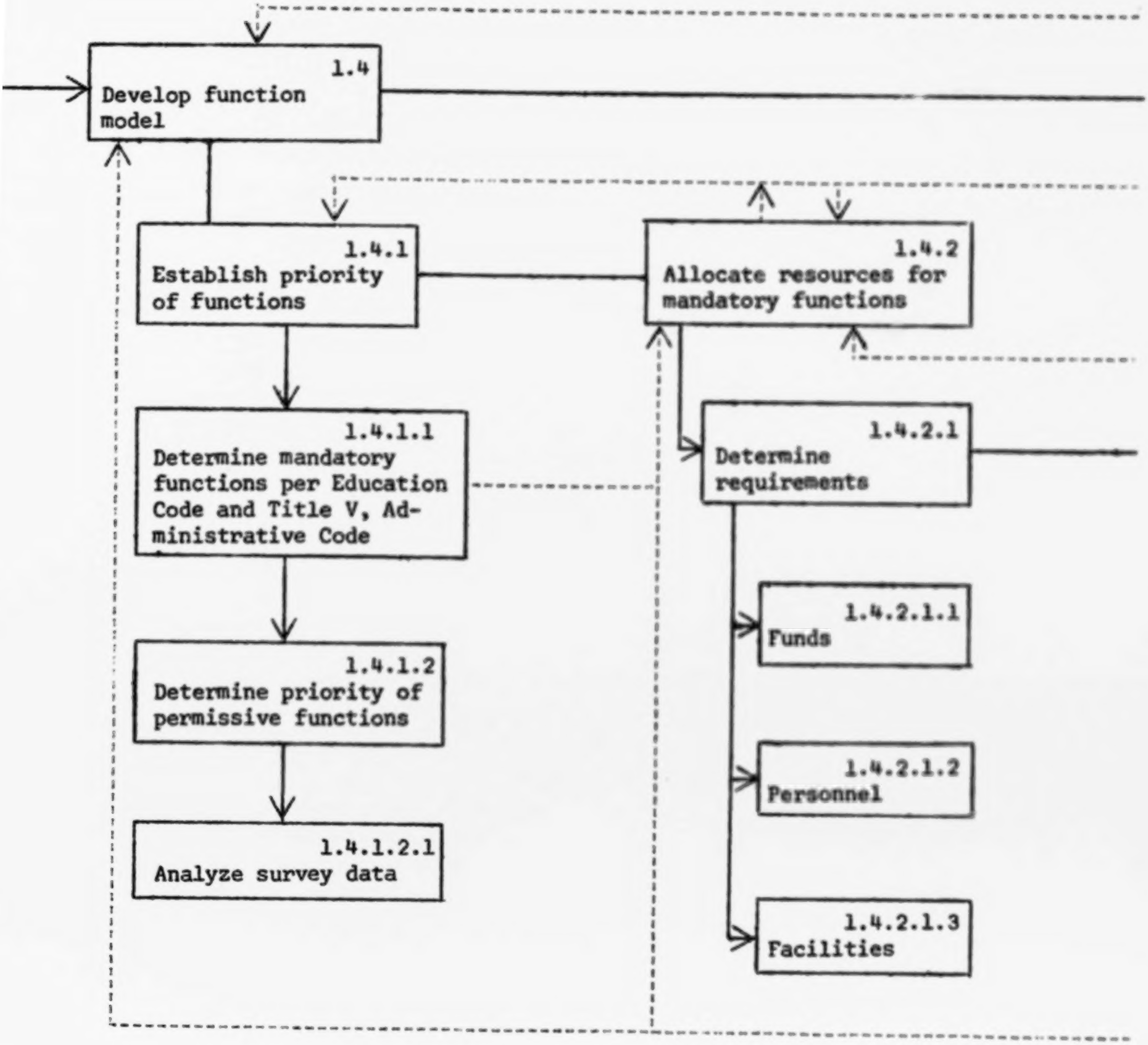
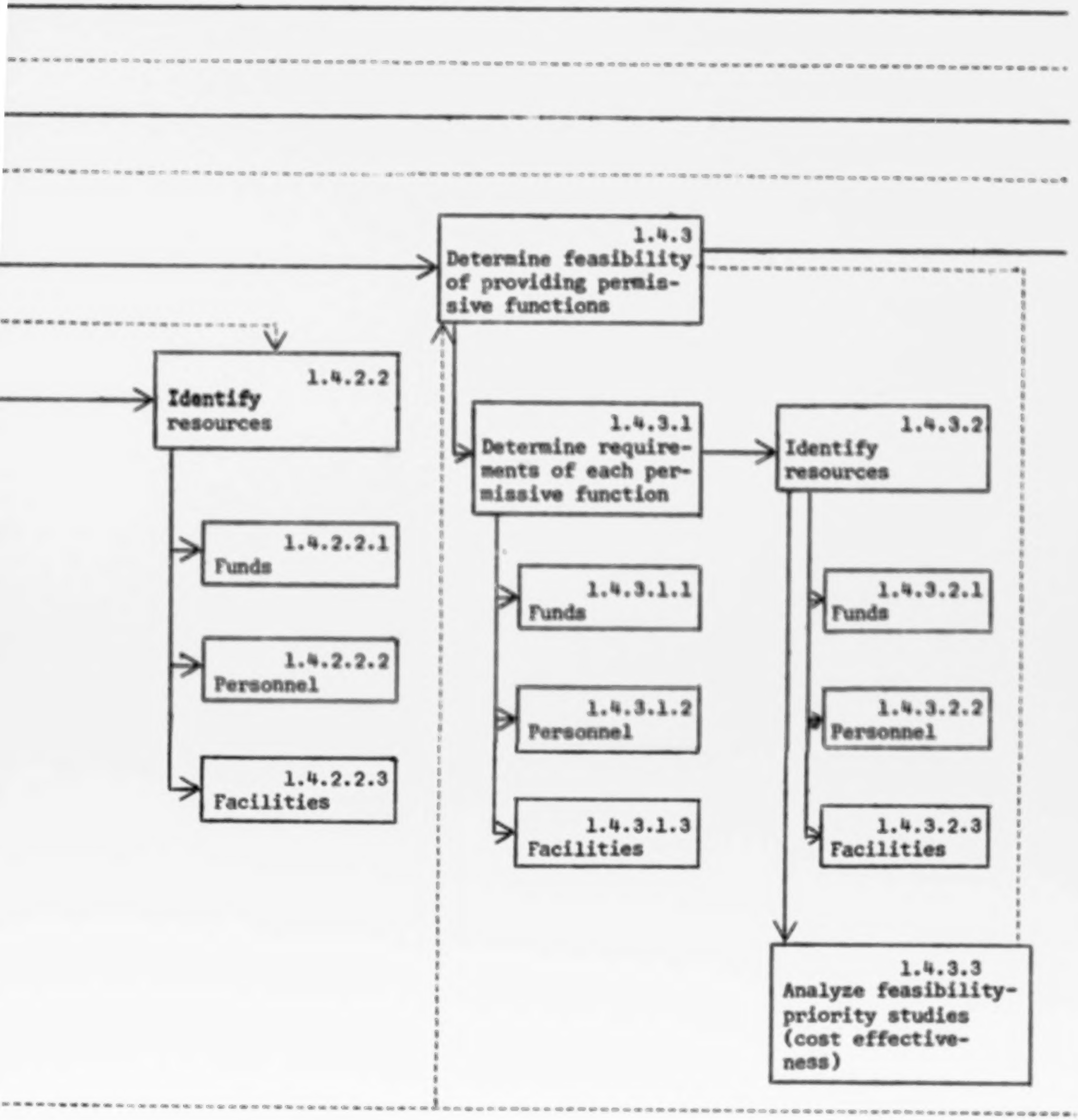
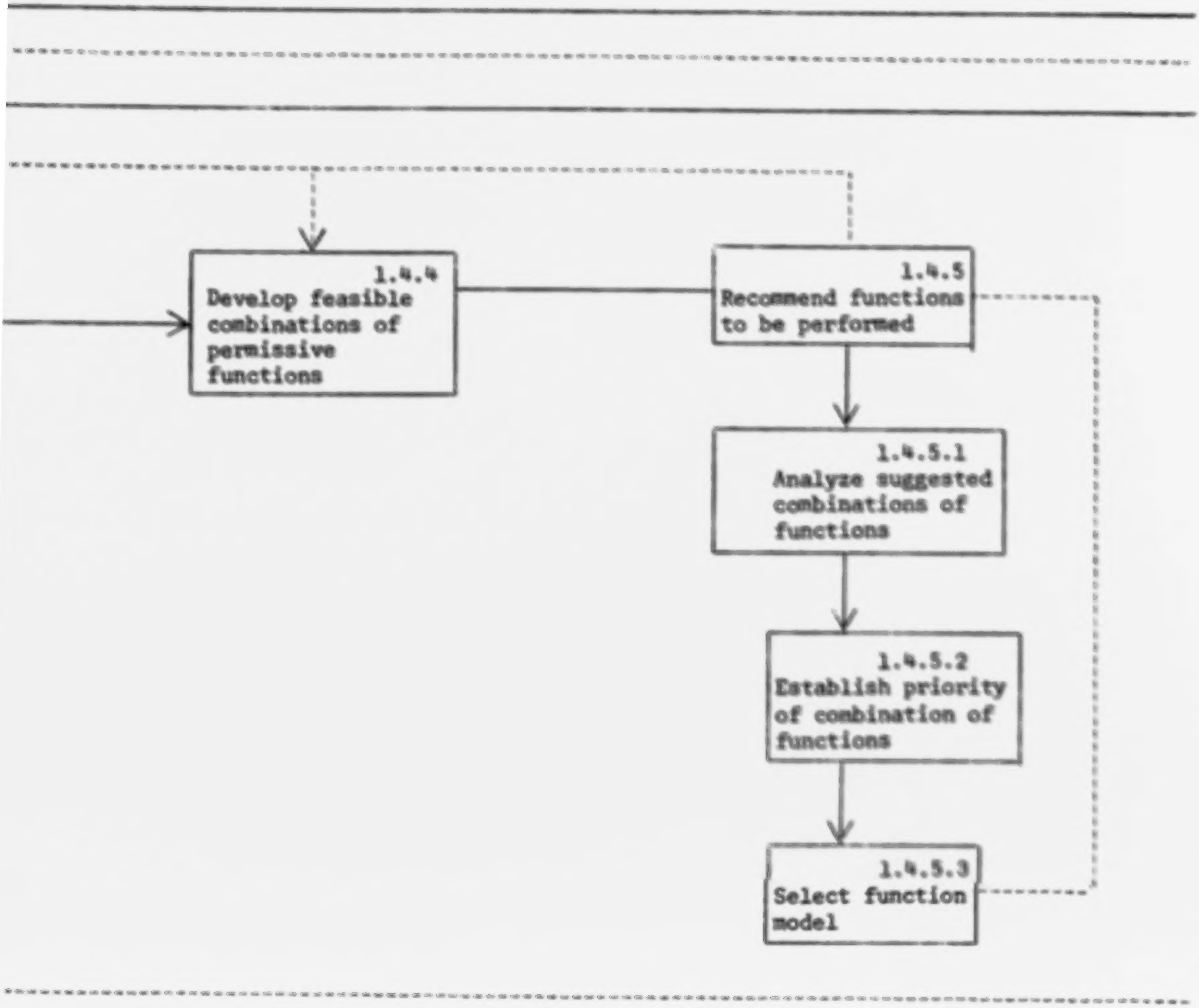
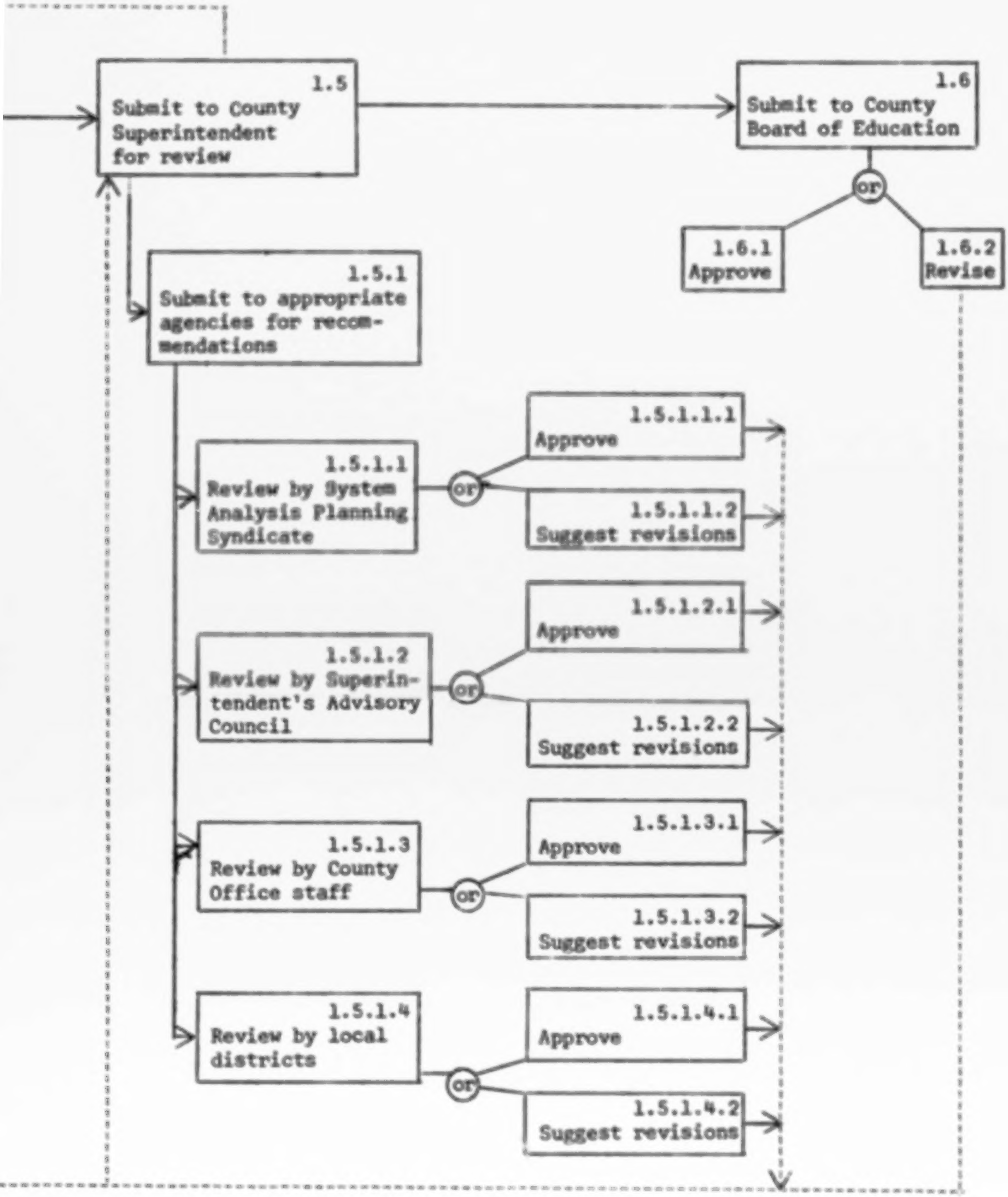
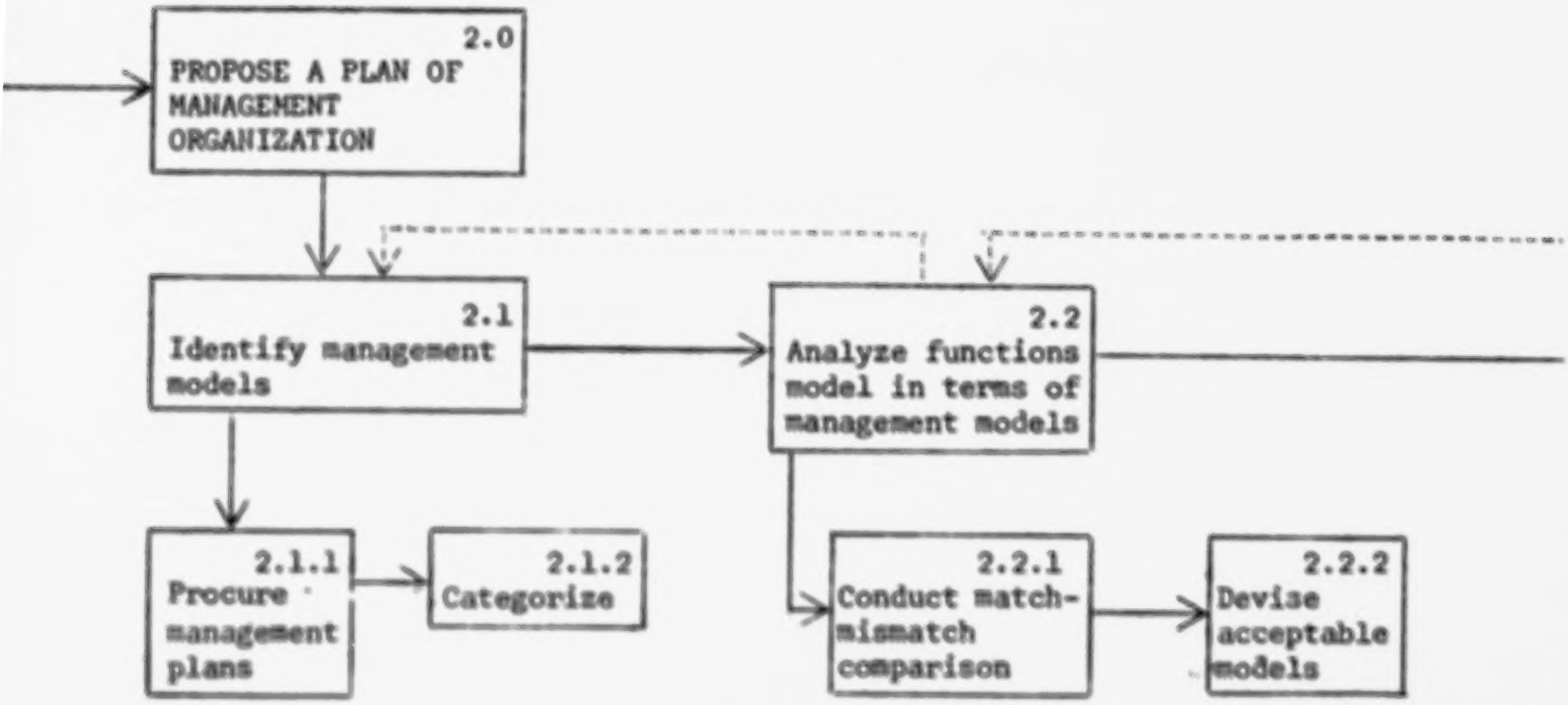

1.2
Identify present and needed functions
1.2.1.1
Survey County Office staff
1.2.1.2
Survey districts
1.2.1.3
Survey community agencies
1.2.1
1.3
Do match-mismatch study of present and needed functions
1.3.1
Tabulate survey results
1.3.1.1
Determine services being provided
1.3.1.2
Determine services not now provided

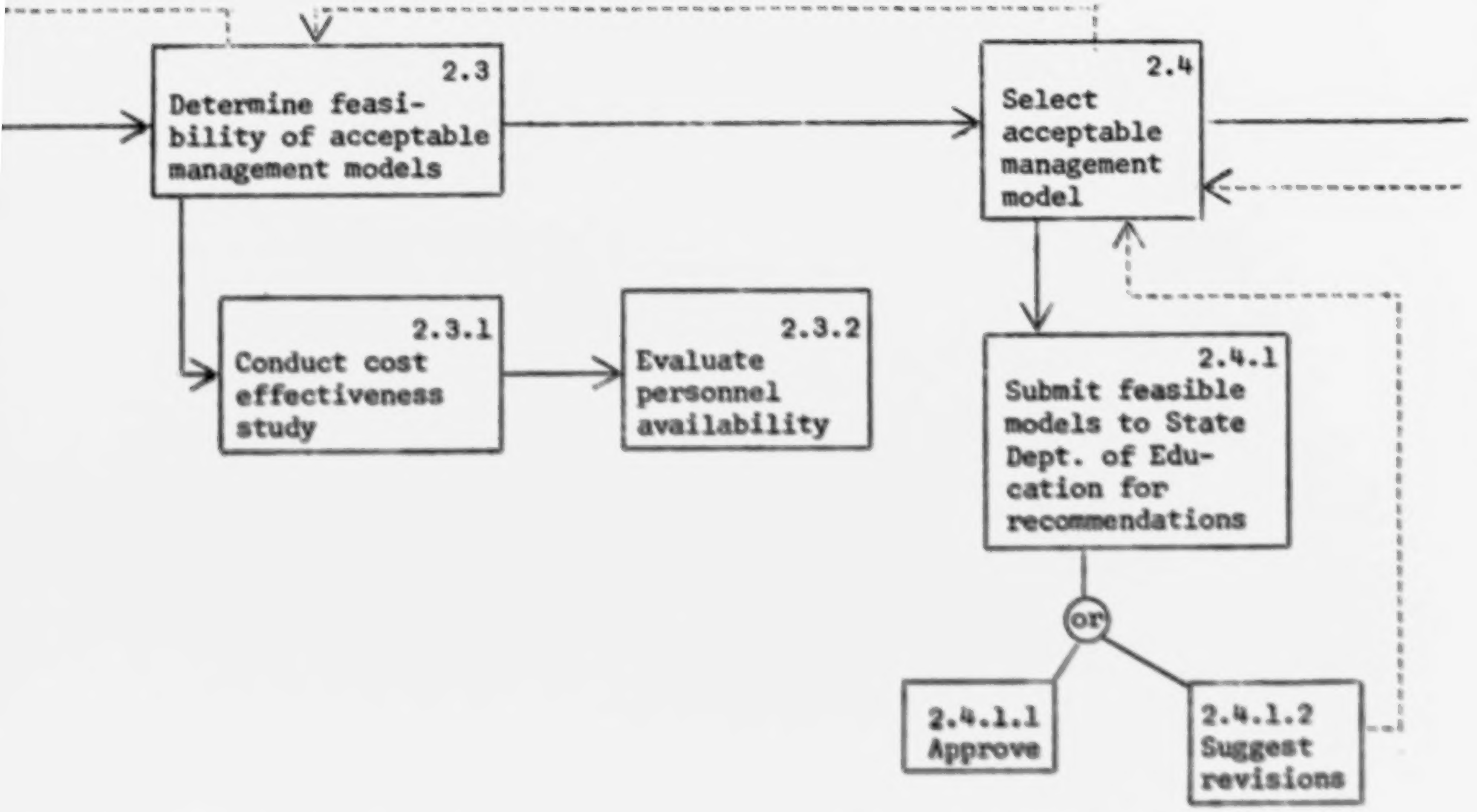

1.4
Develop function model
1.4.1
Establish priority of functions
1.4.2
Allocate resources for mandatory functions
1.4.1.1
Determine mandatory functions per Education Code and Title V, Administrative Code
1.4.2.1
Determine requirements
1.4.2.1.1
Funds
1.4.1.2
Determine priority of permissive functions
1.4.2.1.2
Personnel
1.4.1.2.1
Analyze survey data
1.4.2.1.3
Facilities

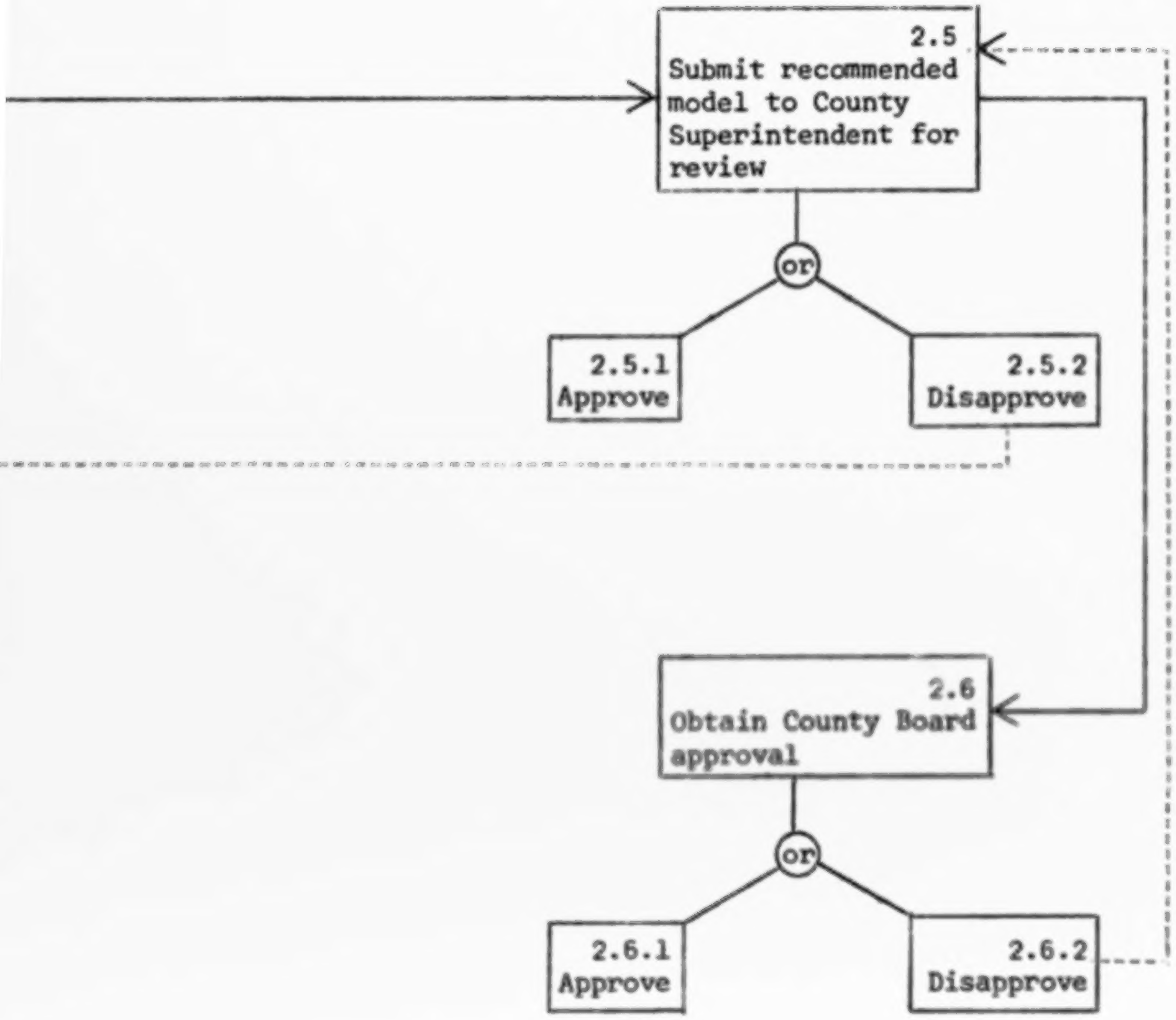

1.4.3
Determine feasibility of providing permissive functions
1.4.2.2
Identify resources
1.4.2.2.1
Funds
1.4.2.2.2
Personnel
1.4.2.2.3
Facilities
1.4.3.1
Determine requirements of each permissive function
1.4.3.1.1
Funds
1.4.3.1.2
Personnel
1.4.3.1.3
Facilities
1.4.3.2
Identify resources
1.4.3.2.1
Funds
1.4.3.2.2
Personnel
1.4.3.2.3
Facilities
1.4.3.3
Analyze feasibility-priority studies (cost effectiveness)


1.4.4
Develop feasible combinations of permissive functions
1.4.5
Recommend functions to be performed
1.4.5.1
Analyze suggested combinations of functions
1.4.5.2
Establish priority of combination of functions
1.4.5.3
Select function model


1.5
Submit to County Superintendent for review
1.6
Submit to County Board of Education
or
1.6.1
Approve
1.6.2
Revise
1.5.1
Submit to appropriate agencies for recommendations
1.5.1.1
Review by System Analysis Planning Syndicate
or
1.5.1.1.1
Approve
1.5.1.1.2
Suggest revisions
1.5.1.2
Review by Superintendent's Advisory Council
or
1.5.1.2.1
Approve
1.5.1.2.2
Suggest revisions
1.5.1.3
Review by County Office staff
or
1.5.1.3.1
Approve
1.5.1.3.2
Suggest revisions
1.5.1.4
Review by local districts
or
1.5.1.4.1
Approve
1.5.1.4.2
Suggest revisions


2.0
PROPOSE A PLAN OF MANAGEMENT ORGANIZATION
2.1
Identify management models
2.2
Analyze functions model in terms of management models
2.1.1
Procure management plans
2.1.2
Categorize
2.2.1
Conduct match-mismatch comparison
2.2.2
Devise acceptable models


2.3
Determine feasibility of acceptable management models
2.3.1
Conduct cost effectiveness study
2.3.2
Evaluate personnel availability
2.4
Select acceptable management model
2.4.1
Submit feasible models to State Dept. of Education for recommendations
or
2.4.1.1
Approve
2.4.1.2
Suggest revisions


2.5
Submit recommended model to County Superintendent for review
or
2.5.1
Approve
2.5.2
Disapprove
2.6
Obtain County Board approval
or
2.6.1
Approve
2.6.2
Disapprove